UNIV. OF
TORONTO
LIBRARY

Physical &
Applied Sci.
Serials

Digitized by the Internet Archive
in 2010 with funding from
University of Toronto

http://www.archive.org/details/p2saminingengine29joha

Physical &
Applied Sci.
Serials

Registered at the General Post Office as a Newspaper. THE SOUTH AFRICAN MINING AND ENGINEERING JOURNAL.

The Only Weekly Mining Paper in the Continent of Africa.

THE South African MINING AND ENGINEERING JOURNAL

Established 1891 Published every Saturday

LIBRARY
APR 15 1920
UNIVERSITY OF TORONTO

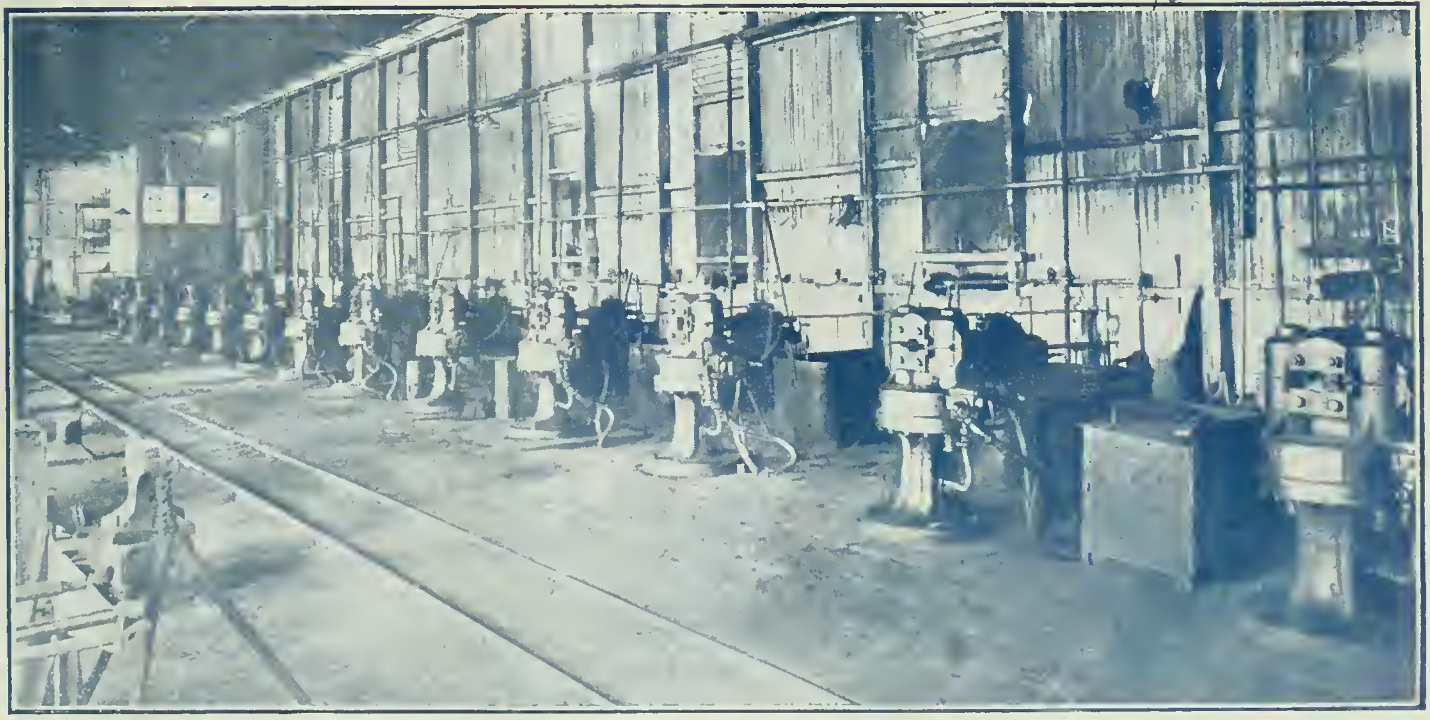
Vol. XXIX., Part II., No. 1184. JOHANNESBURG, TRANSVAAL, SATURDAY, MAR. 6, 1920. Weekly, Price 6d.

INGERSOLL LEYNER DRILL SHARPENERS

FOR STRENGTH, DURABILITY and EFFICIENCY

300 in use in South Africa.

249571
10.12.30



INSTALLATION AT ROBINSON DEEP MINE.

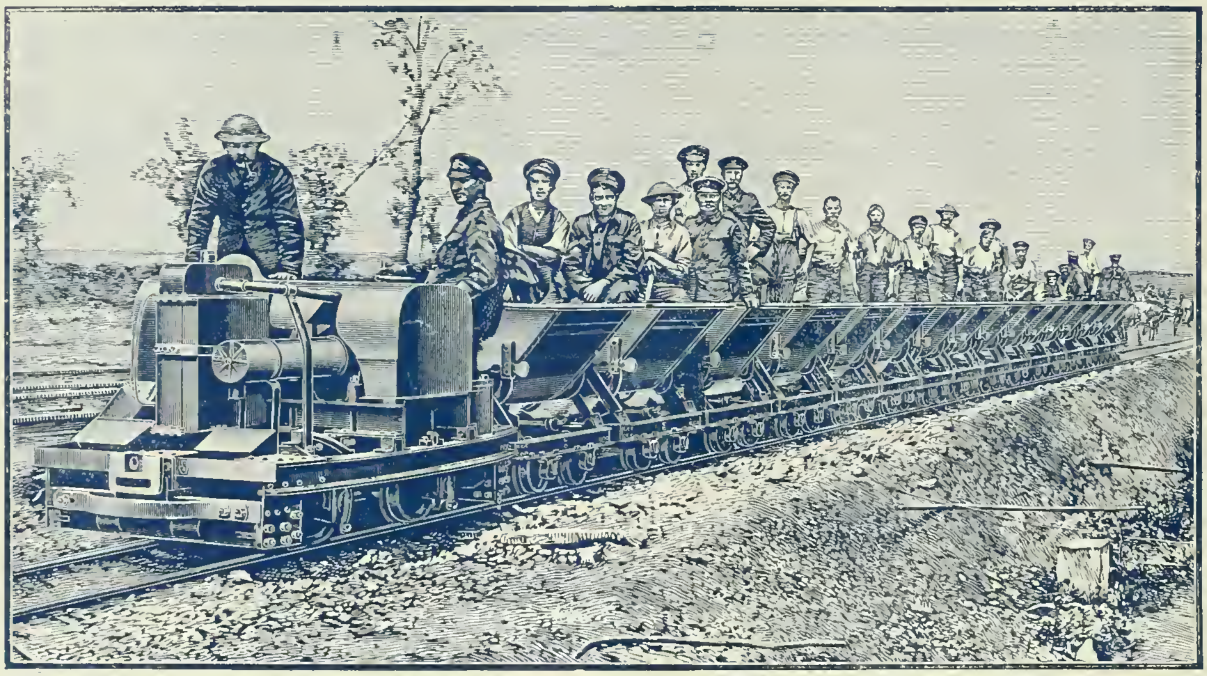
INGERSOLL-RAND CO.

Exploration Buildings, Johannesburg.

ROBERT HUDSON & SONS, LTD.,

Representing ROBERT HUDSON, LTD., Gildersome Foundry, near Leeds.
MANUFACTURERS OF

HUDSON RAILWAY MATERIAL



STEEL RAILS. ACCESSORIES. STEEL SLEEPERS. POINTS AND CROSSINGS.
Self-Oiling Wheels and Axles. Bearings. Light Locomotives.

STEEL TUBS for Collieries
U-SHAPE TIP TRUCKS for Underground Use, for Carrying Quartz.
V-SHAPE TIP TRUCKS and SIDE DISCHARGE TRUCKS for Surface Work.

STEEL WAGONS for Gold and Diamond Mines.
HOPPER WAGONS from 1 to 40 tons capacity.
SISAL WAGONS.
SUGAR CANE WAGONS.

Prices and Specifications on Application.

DURBAN BRANCH	P.O. Box 1007, Durban.
DELAGOA BAY BRANCH	P.O. Box 177, Lourenco Marques.
BEIRA BRANCH	P.O. Box 292, Beira.
LOANDA BRANCH	P.O. Box 265, Loanda.
RHODESIAN AGENTS	P. PEECH & CO., P.O. Box 199 Salisbury.
MAURITIUS AGENTS	BLYTH BROS. & CO., P.O. Box 26, Port Louis.
ACTING CAPETOWN AGENT	A J. G. SIMPSON P.O. Box 239, Capetown.

STOCKS HELD AT
JOHANNESBURG, DURBAN, DELAGOA BAY, BEIRA, SALISBURY, MAURITIUS, ETC.

HEAD OFFICES **CULLINAN BUILDING, JOHANNESBURG.**
'PHONE 1731. P.O. BOX 5744. Tel. Add.: "RALETRUX."

LIBRARY
NOV 17 1920
UNIVERSITY OF TORONTO

INDEX

TO

THE SOUTH AFRICAN MINING & ENGINEERING JOURNAL

JOHANNESBURG.

Vol. XXIX. Part II. March 6th, 1920 to September 11th, 1920.

ANALYSIS OF INDEX.

List of Principal Headings in the following Index, with pages on which they may be found.

PAGE
Annual and Extraordinary General Meetings and Reports, Monthly and Quarterly Reports, Consulting Engineers' Reports. .... i.
Contributed Articles iii
Correspondence .... iv.
Dividends .... iii.
Engineering .... iii.
General Index .... ii.
Illustrations and Maps ... ii. & iv.
Leading Articles .... iii.
Special Articles .... iii.
Statistics .... iv.
Outputs .... iv.

MEETINGS AND REPORTS.

African Banking Corporation (a), 11
African Oil Corporation (c.e.), 9
African Oil Corporation (a), 270, 435
Anglo American Corporation (a), iv.
Anglo American Rand Selection Merger, 5
Anglo French (Transvaal) Navigation Coal Estates (a), 424
Apex, The (a), 279
Aurora West (a), (439), x.
The Australian Oil Shale Industry, 294

Bantjes Consolidated (a), 46, 422
Barnato Group (q), 579, 206
Barnato Group, The Year with (a), 127
Brakpan Mines, Ltd. (a) and (c.e.), 80, iii.
British Non Ferrous Co., The Report of the, 590

Cassel Coal Company (a), 146
Central Minings, 422
Central Mining and Union Corporation Subsidiaries, 233
Chamber of Mines (a), 75
Chemical, Metallurgical and Mining Society (gen.), 58
Cinderella Consolidated G.M. Ltd. (a), xii.
City Deep, Ltd. (a), The Year with (c.e.), 205, 420
C.M.S. Subsidiaries, The latest from (q), 210, 581
Consolidated Langlaagte Mines (a), 363
Consolidated Mines Selection (a), 321
Crown Diamonds (m.), 156
Crown Mines, Position of the (a. and c.e.), 183, 392

Daggafontein Mines (a), 337, ii.
Daggafontein, A Year's Development (c.e.), 86
Drakensberg D.M. Syndicate, 133
Durban Roodepoort Deep (a), 421
Durban Roodepoort, Improved outlook of (c e.), 184
De Beers Consolidated Mines, Ltd., 297

E.R.P.M. (c.e.) (a), 57
E.R.P.M. (a), 337, viii.
East Rand Proprietary Mines (Notice to Shareholders), 58

Far East Rand (Inspector of Mining Leases Report), 55
Ferreira Deep (a), 95

Geduld Proprietary (a), 293
Geduld, The Year with the (c.e.), 104
Geldenhuis Deep, Ltd. (a), 421
Geldenhuis Deep, Position of the, 129
General Mining and Finance Corporation (a), 671
General Mining Subsidiaries, The Year with, 394
The Geological Society of S.A. (a), 31, 71
Geological Survey, The (Dir.), 585
Globe and Phoenix (a), and (ex. gen.), 46, 264
G.M.E.'s Annual Review of the Industry, 665
Government Areas, ·Position at the (a), 161, 364
Greenlands Gold and Silver Mines, Ltd., 22

H.E. Proprietary, 670
Head, Wrightson & Co., Ltd., 590

Jagersfontein Diamonds (a), 444, xii.
J.C.I. Annual Reports, Another Batch of, 156
Jupiter G.M. Co. (a), 119
Jupiter's latest Report (q.), 253

Knight Central (a), 337, x.
Knight's Deep (q), 357
Kolmanskop Diamond Mines, Position of (a), 114

Langlaagte Estate, 353
Leeuwpoort (African Farms) Tin Mines, Ltd. (a), 418, 423
Lonely Mine, April, 276
Lonely Reef (a), 388

Mashonaland Consolidated (a), 61
Meyer and Charlton (a), 444, viii.
Mines and Minerals of S.W. Protectorate (a), 416
Mines as Profit Earners, Report by Sir L. Phillips, 62
Modder B., The Outlook for (a), 107, 421
Modderfontein Deep (a), 293
Modder Deep, Improved Results from (a), 105
Modder West Mine (m), 264, 185
Montrose Diamond Mining (c.e.), 107

Namaqua Copper (a), 444, xii.
Natal Cambrian Collieries, Ltd. (a), 219
New Boksburg Gold Mines (a), 366
New Consolidated Gold Fields (c.e.), 220
New Era Consolidated (a), 337, iii.
New Kleinfontein (a), 317, 105
New Kleinfontein Company, Ltd., 68
New Geduld Deep, 317
New Goch (a), 444, xi.
New Modder (a), 633
New Primrose (a), 364
New State Areas (Inspector's Report), 79
New Unified (a), 364
Nitrogen Products, Committee Report of, 39
New Steyn Estate G.M., Ltd. (a), 468

Outlook for the Modder East (q), 256

Pearl Bitumen Company (Prospects), 439
Pilgrims Rest Mines and Claimholders' Association, 405
Points from the Rand Mines Report, 201
Pomona Diamonds, 8
Postmas Diamonds (Managers), 46
Pretoria Portland Cement (extra gen.), 584
Princess Estate (a), 104

Quarterly Reports, Further Batch of, 233

Rand Collieries (a), 444, xiii.
Randfontein Central, The Year with (a), 159
Rand Selections (a), 337, iv.
Randfontein Central (a), 365
Randfontein Estates (a), 366
Rand Mines, Ltd. (a), 444, i.
Rand Water Board, New Issue by, 437
Rhodesian Broken Hill, Progress at, 132
Rhodesian Mines, The Year with (a), 108
Rhodesia Consolidated, 160
Rhodesia, A Year's Mining in, 356
Rhodesia Gold Mining and Investment (a), 379
Roberts Victor Diamonds (a), 393
Robinson Deep, The Year with (c.e.), 181
Robinson Gold Mine (a), Gold Premium saves the, 157
Rose Deep (a), The Prospects of, 108, 420
Roodepoort United (a), 444, x.

S.A. Alkalies, New Share Issue (a), 173
Sakalava Scheme, The, 587
S.A. Townships, 444, iii.
Sheba Gold, 44
Simmer Deep (a), 220
Simmer Deep, The Year with, 155
Southern Van Ryn's New Scheme, 436
Springs Mines, Outlook for (a), 82
Springs Mines (a), 337, ii.
Standard Bank of S.A., 337, i., 273
Sacke Estates and Mining Co. (a), 468

T.C.L. and Exploration Company (a), 394
T.C.L. Mining Interests of (a), 209

Union Corporation (a), 444, vi.
U.S. Bureau of Mines (a), 588

Van Ryn Deep (a), 365
Victory Diamonds (ex. gen.), 294
Victory Monarch (a), 490
Village Deep (a), 211
Village Deep, A Year's Results (e.c.), 185
Village Deep, Ltd., 444, ii.
Vereeniging Estates, The Year with (a), 305

West Springs (a) and (e.c.), 91
West Springs, Ltd. (a), 337, ii.
West Rand Consolidated (a), 444, ix.
Witwatersrand Mine (a), 363
Witwatersrand Native Labour Association, 220
Wolhuter Gold Mines (a), 27, 95
Wolhuter Gold Mines (q), 309

Zaaiplaats Tin (q), 20, 276

SUPPLEMENT TO JULY ISSUE.

GENERAL.

Composition of Steel, 525

Dunswart Iron and Steel Works, 552

Establishment of Iron and Steel Industries in S.A., 523
Establishing a Local Industry, 561

Griqualand West Iron Ores, 533

Iron Resources of the Union, The, 517
Iron Resources of Rhodesia, The, 537

Mine Disinfection, Value of Coal Tar Disinfectants in, 563

Newcastle Iron and Steel, Ltd., 547

S. Africa's expanding Coal Output, 558
S. African Market for Iron and Steel Goods, 563
S.A. Iron and Steel Corporation, Ltd., 539
Sparks as an indication of different kinds of steel, 561

Tribute to Iron, 561

Union Steel Corporation of S.A., Ltd., 534

ILLUSTRATIONS AND MAPS OF SUPPLEMENT.

Another View of the works (Union Steel), 545

Blast Furnace of the Union Steel Corporation, 535
Blast Furnace, The, 545

Coaling at Durban by hand, 558
Coke Ovens of the Dundee Company, 529
Coke Ovens at the Works of the S.A. Iron and Steel Corporation, 541
Cutting into the Iron Ore, 544

Dunswart Iron and Steel Works, A general view, 552
Dunswart Iron and Steel Works, View of the Sin. Mill, 552
Dunswart Iron and Steel Works, Another view of the Works, 555
Dunswart Iron and Steel Works, Scrap Shears at Work, 555

General View of the Works of the S.A. Iron and Steel Corporation at Pretoria, 544

Map of the World—S.A. Coaling Ports, 527
Modern and Efficient Coaling Appliances—Bluff, Durban, 558

Newcastle Iron and Steel Works, A general view, 547
Newcastle Iron and Steel Works, The Brick Works, 547
Newcastle Iron and Steel Works, Plant in course of erection, 549
Newcastle Iron and Steel Works. The Shops, 549
Newcastle Iron and Steel Works. Another view, 549
Newcastle Iron and Steel Works, The Blast Furnace, 551

One of the Corporation's (Pretoria) Open Workings, 539

Quarrying rich Iron Ore on the Pretoria Town Lands, 544

Rich Band of Iron Ore, 541

Stacking Iron Ore on the Pretoria Town Lands, 539

Train-load of Newcastle Coal, A, 529
Teeming the molten steel into Ingot Moulds, 534

The Union Steel Corporation—General view of Works, 535

Works of Pretoria Iron Mines, 523

GENERAL.

Alluvial Diggers' Board of Control, 318
Along the Reef, 599
Against Decimal Coinage, 186
Air Problems. (Mr. Holt Thomas), 29
An Ancient British Industry, 152
An Appreciation of the Shamva Mine, 140
Armstrong Whitworth Diesel Engines, 29
Associated Scientific and Technical Societies of S.A., 350, 375
Atlantic Flight, The. Sir A. Brown's visit, 246
Auckland Park Shares change hands, 23

Bank Note Uniformity, 118
Base Metals, 603
B.E. Africa Currency Adjustment Scheme, 163
Belgian Congo. Progress and Prospects, 201
Better Financial Advertising, 273
Big Mineral Find in the Cape Province, 625
Big Iron and Steel Deal, 149
Big Pretoria Iron Co. Registered, 273
British Wireless Telephony Up to date, 161
Bwana M'Kubwa Copper, 112
By the Way, 618, 644
British Gold Policy, 310

Canadian Trade Commissioner on S.A. Trade Possibilities, 113
Cape Explosives Works. New Proposal, 149
Central Rand Pumping Scheme, A, 211
Chamber of Mines and the Exchange Question, 425
Coal Conservation, 358
Coal Export Trade, The, 590
Coal Resources of Natal. F. A. Steart, 47
Colliery Notes and News, 196
Consolidation of our Company Laws, 667
Covett, F.A., Mr., on Futur of Lead and Zinc, 504
Currency Question, The other side of the, 377

Developments in the Postmasburg District, 277
Developments on the P.Q. Band, 631
Development Values on the Far East Rand, 401
Diamond Boomlet, The, 25
Diamond Cutting, Regulations under the Act, 63
Diamonds in the Desert, 61
Diamond Fields Jubilee, 114
Diamond Market, The. Its Position and Outlook, 390
Diamond Questions in Parliament, 207
Diamond Questions in the Union Assembly, 500
Doom of the "Dry" Jackhammer, The, 476
Dormant Companies. Some facts and Figures, 153
Drills for Oil Wells, 279
Dust in Mines, 297

E.R.P.M., The Year with the, 57
Electrification of First Main Line Road in America, 454
Emeralds, 110
Emerald Diamonds, Ltd., 239
Emerald Diamonds. Successful Flotation, 407
Empire's Minerals. The need for increasing Production, 281
Encouragement of Prospecting, The, 112

Failure of American Locomotives, 369
Far East Rand. Ore Reserves, 103
Fertilizers and Phosphates, 433
Fuel Research in Great Britain, 375
Functions of H.M. Trade Commissioners, 207

Geology in Relation to Mining, 496
Gold below Johannesburg, The, 600
Gold Certificates and a Central Reserve Bank, 475
Gold Fields of the Belgian Congo, The, 287
Gold Premium and its Influence on Ore Reserve, The, 7
Government and Closing down of Low Grade Mines, 257
Government Leases on the Far East Rand, 55
Great Diamond on view, 32

Have Base Metal Prices touched Bottom, 484
Heavy Cost of Paper, 287
How to obviate closing down Mines, 329
How to turn our Coal Resources to the best advantage, 474

Idle Mines and their Plants, 299
I.M.M. War Memorial, 78
Important Diamondiferous Discovery in Brazil, 177
Improved British Textile Machinery, 159
Improved Outlook for the Rand, 495
Incomati Estates, Ltd., 177
Industries for Returned Soldiers, 466
Industrial Future of the S.W. Protectorate, The, 668
Inefficiency and Working Costs, 463
Information for Investors, 615
Instantaneous Portraiture with Spectacle Lenses, 140
Institution of Mining and Metallurgy, 318
International Scientific Research, 71

Joint Housing of Rand Scientific and Technical Societies, 87
Joint Works Committees on the Mines, 355

Kamfersdam Mines, 169
Kameelfontein Diamond Flotation, 15
Katanga the Astonishing, 635

Labour Conference. The Report by Secretary for Mines, 331
Latest News from the Diamond Mines and Fields, 450
Lonely Reef Values, 366
London Diamond Trade, The, 334
Losses of the Low Grade Mines, 255
Low Grade Mines and the Declining Gold Premium, 152

Madagascar Oil Flotation. French Criticism, 186
Majunga Oil Fields of Madagascar, 667
Maraisdrift, Mr. G. A. Denny's Report on, 373
Mauritius Prosperity, 138
Maximum Production Machine Tool, 328
McArthur, John Stewart, 468
Messina Arbitration, 353
Methods of Payment on the Rand, 324
Mica in Rhodesia, 670
Mines as Profit Earners. Sir L. Phillips, 62
Mines and the Rand Water Board Vaal River Scheme, 402
Mines and the Banks, The, 403
Mineral Production of the British Empire, 482
Mineral Lease Agreements, 221
Mineral Resources of the Empire, 394
Mineral Wealth of the British Empire, 426
Mining Crisis in Cornwall, 619
Mining Plant Sale in Rhodesia, Another, 400
Mining Profession and the Public, The, 617
Mining Questions in the Union Assembly, 180
Mining Questions in the Union Parliament, 481
Modder B., Improved Outlook at, 343
Modder East's Outlook, The, 345
Mount Morgan, 294

Namaqualand Copper Mines, 196
Natalite from Papua, 391
New Flotation Scheme, 131
New Gold Law to assist the Prospector, 616
New Industry for Lourenco Marques, 316
New Method of Paying Wages, 227
New Municipal Generating Plant, 108
New and Promising Portland Cement Enterprise, 53
New Rhodesian Flotation, 132
New Shale Distillation Process, 42
New Shafts at the Modder B., 279

Nitrogen Products Committee, Reports of, 39
Novel overhead Crane, 210

Oil Boom, The coming, 601
Oil Shales and the Oil Shortage, 478
Ore Treatment at Connemara Mine, 32
Other side of the Currency Question, 377
Our Increasing Coal Trade, 275
Our Expanding Coal Trade, 605
Outlook at Randfontein Central, The, 175
Outlook for Transvaal Silver and Base Metals, 190
Outlook on the Far East Rand, The, 513

Par of Exchange with South Africa, 615
Parliament and the Mining Crisis, 280
Passing of the City, The, 203
Pearl Bitumen Transport and Trading Co., 451
Personal Pars: pages 16, 31, 64, 74, 103, 131, 161, 186, 285, 307, 331, 343, 384, 404, 433, 495, 583, 602, 646, 677
Pioneer Machine Tool Builders, 379
Position at the Government Areas, 161
Position at the Messina Mine, 316
Position and Prospects of the Trixie, Ltd., The, 332
Postmasburg Diamond Field, 125
Power for Industrial Concerns, 353
Present Day Problems of Rand Mining, 499
Pretoria Portland Cement Industry, 292
Price of Gold, The, 213
Princess Estate Closing Down, 253
Principles of Oil Accumulations, The, 119
Progress of the "Safety First" Movement, 606
Progress of the Transvaal Silver and Base Metals, 514

Question of Deep Boreholes, The, 86
Question of Native Trading on Mines, 303

Railways and the Coal Trade, The, 325
Railway Rolling Stock Position, 589
Rand Gold Mining Results in 1920, 229
Randfontein Central and Randfontein Deep Merger, 473
Rand's Ore Reserves, The, 323
Rand Water Board, 106
Real Non-Skid Tyre, A, 158
Record Heavy Motor Truck, 139
Recovery of Tin by Flotation, 23
Registration of Mining Engineers, 369
Remarkable Sinking at the New State Areas, 179
Rewards for Prospectors, 573
Rhodesian Broken Hill, 677
Rhodesian Geological Survey (H. B. Maufe), 388
Roodepoort United Mill, 435
Royal Bank of Canada, 33
Royal School of Mines' Dinner, 350

S. African Coal, by Mr. Cullen, 135
S.A.R. Purchases, 353
Saving Waste Coal, 203
Shabani Asbestos Fields, W. H. Fletcher, 215
Shaft Sinking Progress on New State Areas, 79
Shale Oil, 191
Shipping and the Coal Situation, 310
Silver and Lead Prices in the World Markets, 451
Silver Lead Mines Reopening, 123
Springs Mines, 7
Solving the Rand's White Labour Problems, 347
Standardisation of Mining Practice, 113
Surplus Government Stores for the S.A. Market, 259

T. and D.B. Company's Enterprise, The, 341
Third of a Century Ago, A, 629
Trade Unionism and Efficiency, 611
Trans-Zambesia Railway, The, 8
Tungsten Ore Occurrences in S.A., 589
Turbine Pumps, 280

U.K. Mining, 341
Union's Coal Trade in March, 237
Universal Motor, A, 357
Uses of Vanadium, 589
Utilization of S.A. Waste Coal, 13, 483

Valuable Reports on Far East Rand Mines, 371
Vereeniging on Vaal. I., 48
Vereeniging on Vaal. II., 73
Vereeniging on Vaal. III., 101
Vickers' Prospects, 417
Victory Diamonds, Ltd. Important Acquisitions, 51

Why Ore is where it is, 391
Working Costs Problem, 597
World's Oil Supply, 83

TOPICS OF THE WEEK (LEADING ARTICLES).

Activity in Diamonds, 3
Another Contribution to the Exchange and Currency Question, 341

Banking and Currency Reform, 471
Business Outlook, The, 173

Chamber of Mines Annual Meeting, 71
Currency Report, The, 447
Currency Problem, The, 369

Discussion on the Low Grade Mines, 321

Elections and the Economic Outlook, 23

Fate of the Currency Bill, The, 493

The Gold Premium, 273
The Gold Premium and the Low Grade Mines, 99
The Gold Outlook, 123

How the Crisis is being met, 397

Joint Housing of the Rand Technical and Scientific Societies, 17

King Coal and Master Iron, 511

Mining Crisis, The, 253
Mining and Railway Questions in the Union Parliament, 297

Our Daily Bread, 625

Position of the Industry, 201

Reform of the Miners' Phthisis Act, 573

Some Notable Pronouncements, 429
The Steel Contract, 595
State Revenue and what the Mines pay, 227

Trades Union and Socialistic Disappointments, 149

ENGINEERING.

Advantages of Railroad Electrification, The, 165
Arc Welding and its Application. E. B. Bell, 141
Armstrong's Civil Engineering, 214
Armstrong Whitworth's in Peace, 166
Automatic Sub Stations, 218

Boiler Tube Failure, 166
British Electro-Medical Apparatus, 214

Centrifugal Castings, 165

Departure in Overhead Cranes, A, 169

Easy running on Electric Railways, 140
Electricity and Industrial Development. E. G. Izod, 291
Electrification of Natal Railways, 169
Electric Welding, 181
Engineering and Machinery Exhibition in London, 146

German Engineering Industry, 214
Grain Elevator for the Union, 315

July Engineer and Electrical Review, 573

Lighting Conditions in Mines, 221
Latest Engineering Specialist, 221

Milling Bismuth Tin and Wolfram Ores, 105

New British Internal Combustion Locomotive, 221

Old Rails for a Coffer Dam, 214

Publicity for Engineers, 657
Pure Gas for the Public, 133
Pretoria Portland Cement Industry, 292

S.A. Institution of Engineers. Valedictory Address, 566
Steel Works Electrification, 568

Technical Digest, A, 15
Tenders for 750 K.W. Converter, 168

Underground Prospecting by means of Electricity, 615
Use of Electricity in Development of the Resources of the Union. Prof. Buchanan, 268

Wire Ropes and Safety, 195

SPECIAL ARTICLES.

Coal fields of Natal, The. A Retrospect. By James Cumming. I., 577; II., 661

Deep Level Alluvial Leads. B.A.D., 575

Early Pioneers of the Transvaal Goldfields. W. P. Taylor. 197
Exchange Problem in S.A. By C. Hewitt, A.S.A.A., 501

Far East Rand Syncline. Mr. G. A. Denny's views. 417
Future of the Rand, The, Exclusive Interview, 626

Human Element in Mine Operation, The (E. Higgins), 284

Komati Goldfields. A Retrospect (James Cumming), I., 283
Komati Goldfields. A Retrospect (James Cumming), II., 381
Komati Goldfields. A Retrospect (James Cumming), III., 465

Long Rig Jackhammer Mount (F. C. W. Ingle), 349

Mica in the Eastern Transvaal (A. L. Hall), 327

Need of a Mines Trials Committee (G. A. Robertson), 33
New Occurrence of Vanadinite in the Marico District, Transvaal (P. A. Wagner and B. de C. Murchard), 358
Nickel Occurrence in the Barberton District (T. G. Trevor, Inspector of Mines), 453

Our Increasing Coal Trade, 275

Postmasburg Diamond Field (By a Special Correspondent), 125, 151
Plea for the Abolition of the Day of Rest (By a Special Correspondent), 383

South African Coal (W. Cullen), 135
Southern Half of the Far East Rand and particularly the property of the S. Van Ryn Co., 517

Tin Occurrence of the Cape Peninsula and adjoining Districts (B. G. H. Blenkinsop), 16

What's Wrong with the Reef Miners' lot? (By a Special Correspondent), 76
Why the Dry Jackhammer is Doomed (H. E. Barrett), 669

DIVIDENDS.

Consolidated Mines Selection Dividend, 46

Glynn's Lydenburg, Ltd., 506

The Half-Year's Dividends in Detail, 400
The Half-Year's Dividends in Detail, 431
The Half-Year's Dividends, 449
Half-Year's Dividend Distributions, 368

Lardine, Ltd., 561

Monteleo Diamonds, Ltd., No. 2, 335

National Bank of South Africa, 426

Van Ryn Deep, 365

NOTES AND NEWS.

Pages 1, 21, 45, 69, 97, 121, 147, 171, 199, 225, 251, 271, 295, 319, 339, 367, 395, 427, 445, 469, 491, 509, 571, 593, 623, 653

STATISTICS AND FINANCIAL.

Better Financial Advertising, 273
British Trade with South Africa, 309

Compulsory Financial Advertising, 316

Far East Rand Ore Reserves, 103

Gold Certificates and a Central Reserve Bank, 475

June Coal Statistics, 605

Latest Metal Prices, 595
Losses of the Low Grade Mines, 255

Metal Markets, The, 617

Railway Tonnages in Competitive Zone, 644
Rand Gold Mining Results in 1920, 229
Rand's Ore Reserves, The, 323

Six Months of Gold Winning, 457
South African Iron and Steel, 639

What the S.A. Mines Buy (1919), 109
Where our Money comes from and where it goes, 637
World's Production of Pig Iron, 551

OUTPUTS.

April Output in Detail (Gold), 263
April Output Group Returns (Gold), 261

Cape Alluvial Diamond Output, 616
Cape Diamond Diggings Returns, 204, 356
Coal Outputs for Union, 238
Congo Mines and Minerals, 158

Diamond Returns for January month, S.W. Transvaal, 8
Diamond Returns for February month, S.W. Transvaal, 130
Diamond Returns for March month, S.W. Transvaal, 316
Diamond Returns for May month S.W. Transvaal, 454
Diamond Returns for June month, S.W. Transvaal, 618

February (Gold) Output in Detail 35
February (Gold) Output—Group Returns, 36
February Gold Outputs and Profits reviewed, 29

June Gold Output in Detail, 477
June Gold Output—Group Returns, 455
July Output and Profit (Gold), 607

March Gold Output in Detail, 160
March Gold Output—Group Returns, 137, 138
May Output in Detail, 353
May Output—Group Returns, 351
Modderfontein East. Latest Development Results, 583

Natal Coal Output, 62

Our Output to date, 666

Rand's Recent Output and Profit figures, 301
Rhodesian April Mineral Output, 482
Rhodesian Mineral Output, 186
Rhodesian Mining—South Rhodesian Output, 609

South African Coal Output in May, 433
Six Months of Gold Winning, 457

Transvaal Alluvial Diggings—April Returns, 366

Union's Diamond Production, 6

CORRESPONDENCE AND DISCUSSION.

Africa Oil Corporation, 359
American and British Locomotives, 411

British Income Tax, 411
British Income Tax. Non-residents (W. R. Fairbrother), 212

Coal By-Products (J. A. Greene), 479
Coal Petroleum and Water in the Kroonsad District, 673
Coal Tar Disinfectants, 611

Dormant Companies (E. M. Eustace), 162
Drilling of Deep Boreholes, The, (G. Chapman), 111

Efficient Use of S.A. Coals, The, 611

Far East Rand Geology (Scott-Alexander), 359
Far S.-East Rand Geology (Scott-Alexander), 212

Geology of the Oil Fields of Madagascar, 411
Greig Diamonds. A Disclaimer, 31
Greig Diamonds (E. J. Kay), 91

Heidelberg Reefs, 643
Improved Outlook and the Low Grade Mines, 586

Jackhammers. A suggestion of the Chamber of Mines (F. C. W. Ingle), 50

Jackhammer Rigs (W. Allen), 111

King George's Fund for Sailors (J. N. Clarke), 250

Logan G. Mining Syndicate, The, (F. Schellubacher), 212

Modderfontein East Capital, 334

New Geology on the West Rand, The, (E. Kumst), 385

Position at the Roodepoort United, 386

Randfontein Central Gold Mining Co., 586

S.A. Institution of Engineers (W. Elsdon Dew), 411
South African Coke (C. A. O. Bain), 309
Southern Van Ryn (W. Allen), 479
Southern Van Ryn Reef Gold Mining Co., 611

View on Exchange, A, 334

Weight of the Carat, The (L. Watkins), 359
West End Diamonds (C. Woodrow), 255
West Rand Geology, 412
West Rand Reefs, 643
West Rand Reefs. Prospector's growl, 193
West Rand Reefs (E. Kumst), 139
West Rand Reefs (Scott-Alexander), 162

ILLUSTRATIONS AND MAPS.

Apex Mill, 75

By-Product Industry in Natal, 605
Brick and Tile Works at Vereeniging, 101
Brick and Tile Works at Vereeniging. Another view, 101

Central Section of Witwatersrand Goldfields (Outcrop Mines), 204

Diagrams of Steel Works Electrification, 568

Exploratory Work. Goabeb Tins, 603

Headgear at Main Pit—Cornelia Colliery, 102
Hematite Deposit near Dundee, 603
Hope of the Rand, The. New Shafts at West Springs, 627

In a Main Reef Series Stope, 631

Jean Jadot, Mr. and Mrs. Robert Williams, 635

Key Plan for Modder East, 256

Makganyene Washing Plant, 151
Map of a portion of Madagascar, 451
Map (Properties African Oil Corporation, 9
Modderfontein B. Rugby Football Team, 645
Modder West (Main Shaft, etc.), 265

Natal Coal Mine, A well equipped 238
Natal Colliery, A. Another view, 237
New Pit, Durban Navigation Collieries, 275
New Borehole on Luipaardsvlei No. 10, 594
New View of the No. 4 Shaft Government Areas, 599
No. 4 Shaft of Springs Mine, 594

One of the Drives in Bituminous Shale, Wakkerstroom, 601
Opening up Cassiterite on the Goaheb Tin Property, 603
Opening up the Katanga Copper Belt, 636

Plan of the Postmasburg District Properties, 239
Plant of Natal Ammonium Co.—Mt. N'Gwibi, 276
Plan of Transvaal Silver Mines, 515
Photograph of Sir Arthur Whitton Brown, 246
Postmasburg Commonage, 151
Postmasburg Diamond Field (Further view), 187
Postmasburg Prospect Workings, The, 162
Primitive Mining and other scenes in the S.W. Protectorate, 503

S. African Inventiveness and S.A. Engineering skill, 663
Shaft on Waterstroomvlei, 151
Shaft-sinking Progress at West Springs, 31
Scenes at Postmasburg, 151
Scenes at Vereeniging 49
S.E. Shaft of the Modder B. Gold Mines, 279, 343
Silver Boom, 659

Telegraph Office in Johannesburg in 1887, 629
Train-load of Natal Coal at Newcastle, 276
Typical Group of Rand White and Coloured Workers, 626
Typical Natal Colliery, A, 237
Typical Natal Colliery, Another view, 238
Typical Rhodesian Gold Mine.—The Etna, 609

Union Steel Works at Vereeniging. General and interior view, 73
Union Steel Works. Blast furnace, 74

View in Katanga, 636
View at the New Modder, 633
Views on the Property of the Trixie Gold Mine, 333

Where Hope springs Eternal, 594
Workings on Kouwater (Emerald Diamonds), 151
Workings on Waterstroomvlei (Emerald), 151
Works of Union Steel Corporation at Vereeniging, 639

THE
S.A. Mining
AND
Engineering Journal
WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.
ESTABLISHED 1891.

VOL. XXIX., PART II.] MARCH 6, 1920. [No. 1484.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 1

Topics of the Week:

The Activity in Diamonds 3
The Anglo-American—Rand Selection Merger 5
The Union's Diamond Production 6
The Gold Premium and its Influence on Ore Reserves 7
Diamond Returns for January 8
The Outlook for the African Oil Corporation 9
The Year with the African Banking Corporation 11
The Utilisation of South African Waste Coal 13
Tin Occurrence of the Cape Peninsula and Adjoining Districts 16

Engineering Section:

A Technical Digest 15
The Week in the Sharemarket 17

Trades and Industries Section:

The Week in the Mining Material and Engineering Trades 19

Notes and News.

West End Diamonds.

We understand that the General Mining and Finance Corporation have disposed of their interest in the West End Diamond Mine to Sir Abe Bailey.

* * * *

Transvaal Silvers.

Latest reports from the property of the Transvaal Silver and Base Metals continue to be encouraging, and recent visitors to the property have been impressed with its potentialities. The first annual meeting, *i.e.*, the statutory meeting, of the company will be held shortly.

* * * *

S.A. Students' Club.

The Prime Minister's attention has been drawn to the appeal in the Press for financial support of the African Students' Club in London, and he takes the opportunity of stating that this movement has his wholehearted support. When in London he had the opportunity of gauging the interest and the value of such a club, and he has come to the conclusion that it would be of the greatest benefit not only to South African students, but also to visitors from South Africa in London.

* * * *

Basuto Diamonds, Ltd.

One of the latest diamond ventures is styled "Basuto Diamonds, Ltd.," and is registered in the Orange Free State. The capital is £21,000, divided into 168,000 shares of 2s. 6d. each. Allocation of capital is: Working capital, £4,000; reserve, £5,000; to vendors, £8,000. The farms with which this concern is interested are Vreugde and Erfdeel, in the district of Fouriesburg. The directors are Messrs. Richard C. Power, Percy V. Tiran, N. Searle, Max Solomon; and the secretary is Mr. J. Hobbs, with offices at 112 and 113 Stock Exchange. The property has been reported on by Mr. Jas. Murray.

* * * *

The Union's By-Product Output.

The returns of mineral production in the Union, issued by the Chamber of Mines, in respect of January, contain a valuable little table which exhibits the by-products of coal produced in South Africa for that period. The summary of by-products output is as under:—Middelburg (Transvaal): Coal converted into by-products, 508 tons; by-products produced, 3,186 gallons tar. Natal: Coal converted into by-products, 5,871 tons; by-products produced, 1,413 tons coke, and 186 tons sulphate of ammonia. Totals for Union: Coal converted into by-products, 6,379 tons; by-products produced, 1,413 tons coke, 3,186 gallons tar, and 186 tons sulphate of ammonia.

* * * *

The Plight of the British Manufacturer.

We had hoped, and thought, from latest reports received from England that manufacturers there had surmounted most of their troubles and were now in a position to recover the lost trade with the overseas dominions. A cable received on Thursday by a leading local firm from their British principals provides a rude awakening. The cable speaks for itself, and is as follows: "Owing to the unsettled conditions due to possible further award of wages, also to the fact that suppliers of raw materials refuse to quote firm prices, especially of iron and steel, all outstanding quotations and discount advices are subject from date to wages adjustment clauses as existing, also to clauses allowing us to increase selling prices by actual net amount material costs us over estimated cost. Our auditors' certificates to be final. Unless these conditions are accepted, it will be necessary to withdraw all our outstanding quotations to you or make them subject to confirmation before acceptance. All future quotations will be subject to above material and labour clauses without repetition." Business men will appreciate the seriousness of this message, which, in effect, puts a stop to business with Great Britain, as no purchaser on this side will accept such terms when better are procurable. Taken in conjunction with the autocratic attitude of organised labour locally, this means that we are up against a state of affairs that simply cannot last. The matter shall be further discussed in our next issue.

Standard Bank Profits.

A cablegram has been received stating that the board of directors of the Standard Bank of South Africa, Ltd., propose to declare at the shareholders' meeting to be held on the 28th proximo, an interim dividend at the rate of 14 per cent. per annum, with bonus of 2s. 6d. per share, both subject to British income tax, making the total distribution of 16½ per cent. for 1919. It is proposed to appropriate £75,000 for writing down investments to less than market values, as at 31st December last, and to write £50,000 off bank premises. It is further proposed to transfer £200,000 to an exchange reserve fund and £40,000 to officers' pension fund, carrying forward the balance of approximately £210,000. All other usual and necessary provisions have been made.

* * * *

At the "C.M.S." Subsidiaries.

Excellent progress in shaft sinking is being made at the various subsidiaries of the Consolidated Mines Selection Company. Daggafontein has been putting up records during the past few weeks in the No. 2 shaft. Exact data as to when this shaft is likely to cut the reef are not easy to obtain, but it is believed that the ore body will be intersected at a depth of about 3,900 feet. At West Springs and at the deep areas of Brakpan sinking is proceeding apace and development at West Springs is going on satisfactorily. At Springs Mines progress in the new shaft is good and the reef should be intersected within the next few weeks. The Springs Mines Company was singularly unfortunate in having a breakdown at the No. 2 winder a few days ago, as this company was securing excellent results during February despite the short running time.

* * * *

The Life of the Premier Mine.

Speaking at the annual meeting of shareholders in the Premier (Transvaal) Diamond Company last week, Mr. P. Ross Frames said they would notice from the general manager's report that the extraction of 4½ million loads during the year had lowered the mine only 13 feet, and that above the present level there were developed 32½ million loads, which on the present scale of their operations were equal to seven years' work without any further development, though that would be pressed vigorously as soon as the necessary labour could be secured. So far as they could judge it would be practicable to continue working their mine in the open to somewhere about the 1,200 foot level. The average depth of the mine at the end of the year was 275 feet, which meant that, at the present rate of working, they still had before them about 71 years' work in the open. It was dangerous to prophesy, but it is probable that before the company had to go underground he would be underground, so he did not much mind if his calculation ultimately proved to be out by a year or two.

* * * *

The Permanency of High Prices in Germany.

A significant announcement has been made to their customers by the Siemens-Schuckert Works, of Berlin. The notice states that the development of prices in recent months has led to the circumstance that the additions made on account of the dearness of materials and labour—additions charged in excess of pre-War basis prices—have gradually advanced approximately to 1,000 per cent. It cannot be assumed that prices will fall at any time to the level of those which prevailed prior to the War. On the contrary, even if the war-time additions can be partly removed at a later date, it may be definitely reckoned with that the basis prices will always be several times greater than those in pre-War times. As a consequence, the firms belonging to the price bureau of the Central Union of the Electrical Industry have decided to increase the basis prices and reduce the war-time additions to an equivalent extent. The new basis prices have been fixed at three times those which obtained in the first half of 1914. The only exceptions apply to the price lists for machines and motors constructed with substitute metals, and the prices of machines with copper and aluminium windings; and in these cases the quotations have only been doubled, as they had already been raised by 50 per cent. as compared with the prices in 1914.

African Banking Corporation.

Speaking at the annual meeting of the "A.B.C."—of which a full report appears in this issue—Lord Selborne said that they had been devoting their energies to extending their connection in South Africa, and several new branches had been opened. During the years of the War much had been accomplished in the way of fostering industrial enterprise, both agricultural and manufacturing. The chief difficulties in the way of the development of South African industries were the comparative dearth of white population, the high cost of living, and the considerable expense and difficulty in obtaining skilled labour. Suitable immigration was one of the country's crying needs.

* * * *

Astoria Diamond Mining Co.

We are officially advised that the Astoria Diamond Mining Company, Ltd., has been formed in Johannesburg, and registered in the Orange Free State, with a nominal capital of £50,000, divided into 100,000 shares of 10s. each, allocated as follows: Vendors, 35,000 shares; working capital, 30,000, which have been fully subscribed; and a reserve capital of 35,000 shares. The directors are: Messrs. Richard Goldmann (chairman), Geo. S. Morison, G. Cresswell Clark, C.M.G., V.D., O.B.E., W. B. Pickles, and M. Lichtenstein. Secretary, Mr. Frank E. Davis, 154-158 Exploration Building, Johannesburg. Auditors, Messrs. Aiken & Carter, 1-9 National Bank Buildings, Simmonds Street. Bankers, National Bank, Commissioner Street (Central). Solicitors, Messrs. Max Cohn & Andrews, Meischke's Buildings, Johannesburg. The objects of the company include the carrying on of diamond mining operations on the farm "Twyfelhoek," Orange Free State. The area of the farm is about 1,500 morgen, out of which 500 morgen are allocated as mining area, situated 12 miles north-east of the township and mine of Koffyfontein in the district of Fauresmith. The company holds the right for a period of two years to work the property for diamonds and to purchase the said 500 morgen for £25,000. Mr. Joseph Gouldie, C. & M.E., M.I.M.E., has reported on the property and declares the existence thereon of a well-defined diamondiferous pipe; and from open workings and prospect shafts sunk, together with surface indications, he estimates the mine to contain from 250 to 400 claims, 30 feet by 30 feet. Mr. Gouldie further states the Kimberlite compares favourably with that found in Koffyfontein and Bultfontein, and contains similar garnets, carbon and other deposits found in the matrix of the diamond. Mr. James West, formerly manager of the Koffyfontein mine, Crown Diamonds, and assistant manager of the Premier mine, testifies to the payability of the Astoria mine and the exceptionally high quality of the diamonds found therein. It is the intention of the company to erect, with the least possible delay, a modern and efficient plant, capable of washing about 500 loads per diem.

* * * *

The Alluvial Diggings.

The discussion on the matters brought forward at the annual Congress of the Vaal River Diggers' Union, held at Barkly West recently, was attended by the Minister for Mines and Industries, Mr. Malan. On the question of the proposed board of control, the principle of which was agreed to by the Transvaal delegates who participated in the combined conference held in Kimberley in September last, the Transvaal delegation which attended the present Congress to further discuss this important matter took exception on various grounds to the financial and other details involved in the constitution of the board on the lines suggested, with the result that for the time being, at all events, the prospect of one representative organisation for the whole of the alluvial industry appears unlikely of realisation. On the other hand, under the scheme adopted the door remains open for widening the field of representation in the event of any further discussion being found to facilitate the removal of the existing differences, and smooth the path towards the ultimate creation of a united body, such as the growing interests of the alluvial industry are generally held to demand. The nature of the functions to be discharged by the proposed board of control are clearly differentiated from the control of output established by the large producers. As the Minister emphasised in the course of his speech—which, by the way, appears to have been characterised by a commendable desire to as far as possible meet all reasonable objections, and afford all practicable help on the part of the Government towards the framing of a generally acceptable scheme—the very first decision arrived at by the recent producers' conference on the question of output was that they would not in any way attempt to limit the output of the alluvial diggings. The large producers, by the limitation of their own output, keep up the market, carrying the small producers and alluvial diggers along with them. The alluvial diggers thus enjoy the double advantage of sharing in the benefit of the high prices maintained by the restriction of output from the mines, while their own output remains unlimited, and, as the Minister pointed out, is steadily going up, while representing an enhanced value which puts into the pocket of the digger double the amount received before the War. At the same time, attention should also be directed to the warning uttered by the Minister as to the undesirability of throwing up other walks of employment in order to compete with the existing diggers.

* * * *

"The New Spirit in Industry."

"The New Spirit in Industry" was the subject chosen for his recent address delivered to the members of the Birmingham Reconstruction League by Mr. W. L. Hichens, managing director of Cammell, Laird & Company, in the course of which he observed that in regard to industry there were many people who were prepared to condemn the whole system as it existed to-day. A system based upon profits, wages, capital, and competition, they maintained was wrong. They said the principle of profits for the employer aroused no enthusiasm in the worker. The capitalist was an undesirable person. He was regarded as next-door to the profiteer. There was a school of thought that looked at wage-earning as slavery. They said the workman was not far removed from serfdom. The ideal of the future, Mr. Hichens declared, must be industrial self-government under which there was no hard and fast system yet under which every workman was definitely responsible. Similarly, in regard to competition, there were those who said it was wrong because it appealed to the worst passions in the human breast. There was no doubt a great deal of force in the criticism levelled against the industrial system as it existed to-day. Many substitutes had been offered in its place—nationalisation, guild socialism, co-partnership, and co-operation. Personally, he did not believe there was any real substitute for the industrial system as we knew it to-day. He did not wish to lay undue emphasis on the point, but there was some truth in the consideration that it was very difficult to carry on any big organisation except on the lines upon which it had been built up. He did not agree that the basis upon which industry was founded in the past was wrong. He did not agree that the basis of profits was in itself wrong. He recognised that profits could be carried to extremes. Profits, of course, were liable to be abused. Similarly in regard to wages and competition—there was nothing discreditable in accepting wages, and healthy rivalry was a sound system of business. Further, he did not think we could possibly do without the capitalist system. It was no use aiming at the complete subversion of the present industrial system. The point they had to concentrate upon was the securing of a system under which complete justice could be obtained as between the employer, the worker and the consumer. It was important that representatives of the community should have a voice in the settlement of differences, and the final arbiter in all matters in dispute should be the Government. It should not be that the strongest element should have the power to force its will upon the others. That would produce no solution of industrial problems; it would merely postpone it. If they wished to preserve the community and do their duty towards the community, they must first and foremost consider the community itself.

TOPICS OF THE WEEK.

THE ACTIVITY IN DIAMONDS.

The excellent reports from the diamond markets in London, the Continent and America, combined with the increasing profits being shown by the diamond producing companies, are as usual being reflected in the flotation of a host of prospects destined to a more or less uncertain—not to say ephemeral—future. Never was the reward greater than to-day for the discovery of a real diamond mine, but speculators must remember that the risks are usually commensurate with the rewards, and that conditions such as obtain to-day generally produce a crop of ventures baited to trap the unwary. Light was thrown on the general position of the diamond market at the Premier meeting, and several of the facts mentioned by Mr. Ross Frames on that occasion are of great public interest. Mr. Ross Frames explained in detail how much the present flourishing condition of the diamond market was due to the policy of control and the restriction of output, upon which all the chief producers had agreed. He went so far as to say that anyone responsible for a rupture of present relations, or for the denunciation of the agreement arrived at, should be regarded and ought to be treated as an enemy of the State and the diamond industry. He enumerated the more obvious advantages that have accrued and would accrue to the company and to the State from its interest in the Premier Mine, as a result of the restriction of the quantity of diamonds put upon the market since the resumption of operations after the outbreak of War. These were: (a) Increased price realised for the production of the company; (b) larger profits or, to put it more accurately, improved ratio of profits, which means that whilst the tax on the gross value of the diamonds has been more, the tax on profits has, from a percentage point of view, been diminished; (c) less strain upon the machinery and plant, and consequent reduction in the charge for maintenance; (d) the extension of the life of the mine; (e) longer working in the open, with the resulting cheaper working costs; and (f) additional revenue to the State, both in amount and over an extended period. It appears that during the past financial year the Government has received well over £900,000 from the Premier Mine by way of share of profits, export duty, profits tax and dividend tax, and that for the Union's financial year ending the 31st March, the revenue from this company will be over one million sterling. Mr. Ross Frames especially congratulated the new Corporation that has acquired the principal fields in the South-West Protectorate, on being freed from "the gnawing anxiety arising from an uncontrolled diamond market and on inheriting all the advantages of the Conference agreement." Mr. Ross Frames bewailed the fact that though the revenue derived by the Government from the diamond industry is vast and any fall in the diamond market must seriously affect the revenue, which would have to be made up from other sources of taxation, yet no attempt is made by the State to prevent the opening of new mines until the existing sources of supply are insufficient to furnish the world's requirements. He declared that the discovery of another very rich diamond mine, particularly if not in the control, would play havoc with the whole trade, and yet the Government is apparently indifferent to or unappreciative of such a contingency. There are dissimilar precious stones laws in the various Provinces, which call for consolidation; but nothing is done, though the Minister of Mines has prepared drafts of a Consolidating Bill on two different occasions in the earlier days of Union, but they have not been brought to light. "What would happen," asked Mr. Ross Frames, "to the Premier Mine if a very rich mine were discovered in a Province under the law of which the Crown has no interest or a smaller interest than it has in the Premier? To attempt to alter the law after such discovery would be manifestly unfair; but if the law is altered now no one who discovered a mine afterwards would have any just complaint." This is certainly a very pertinent question in these days when some of our diamond-mining friends are not content with discovering new mines but claim to be discovering veritable new nests of diamond pipes!

SIEMENS BROTHERS
& CO., LIMITED.

CABLES AND ACCESSORIES

TELEGRAPH
TELEPHONE AND
SIGNALLING APPARATUS

OVERHEAD LINE
EQUIPMENT

PRIMARY CELLS
&c., &c.

SIEMENS BROTHERS & Co., Ltd.,
WOOLWICH, LONDON, S.E.18
ESTABLISHED 1858.
Telegrams: "Siemens, Woolwich"
Telephone: City 6400 (7 lines).

HOME BRANCHES:
BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:
CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.— Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:
A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.
Telephone 1202.
Telegrams: "WOTAN."

THE ANGLO-AMERICAN—RAND SELECTION MERGER.

Fusion of Mutual Advantage to Both Parties—Control of the Consolidated Diamond Mines the Important Factor—Anglo-American Directors Voluntarily Reduce their Remuneration—Co-Operative Working with the "C.M.S."—Excellent Prospects for the Enlarged Undertaking.

As anticipated for some time, the Anglo-American Corporation of South Africa is to absorb the Rand Selection Corporation on a basis of eleven shares in the former for every five of the latter. The official circulars containing details of the proposal were issued this week, and will be found set out in full in another part of this issue. Shareholders in Rand Selection Corporation have until May 25 to exchange their shares in the requisite form for those of the Anglo-American on the basis of eleven for five. The Anglo-American directors are also asking for power to increase the capital of that Corporation from £2,000,000 up to £4,000,000 in 4,000,000 shares of £1 each, in order to provide the necessary shares to satisfy the offer made to shareholders in the Rand Selection Corporation. Should all Rand Selection Corporation shareholders avail themselves of this offer, an additional issue of 1,320,000 £1 shares in the Anglo-American Corporation will have to be made, which will bring the total issued capital up to £3,320,000, divided into 3,320,000 shares of the nominal value of £1 each. Assuming that authority is granted to bring the Anglo-American capital up to £4,000,000, a balance of 680,000 authorised shares will remain, and it is proposed that the directors retain authority to create and deal with these shares. Authority is also asked for by the Anglo-American Corporation to increase the maximum number of directors from six to twelve to provide additional seats on the directorate as the interests of the corporation extend and become more varied. The Anglo-American people also announce that the two permanent directors, Messrs. E. Oppenheimer and W. L. Honnold, will accept reduced remuneration of 2½ per cent. and 1¼ per cent. respectively (instead of 5 per cent. and 2½ per cent. respectively) upon dividend distributions, and that the other directors will accept 1¼ per cent. instead of 2½ per cent. on dividend distributions, as stipulated in the articles of association. It is satisfactory to note that the proposal to alter the percentage of profits payable to the permanent directors originated with these gentlemen themselves, who, in view of the proposed merging of the interests of the Rand Selection Corporation and the Anglo-American Corporation, and the fact that the latter has acquired a controlling interest in the South-West Diamond Company, anticipate that the future profits will be larger, and consequently the remuneration accruing to them greater, than contemplated at the time of the formation of the Anglo-American Corporation. The proposal to alter the rate of remuneration payable to the remaining directors is due to the same reasons.

SOME ATTRACTIVE FEATURES.

It will be seen from the circulars that the Rand Selection directors strongly recommend the acceptance of the offer, and it may be of interest to examine the reasons that actuate them in so doing. Though the "A.A.C." does not specify its assets in detail, we know from its latest published reports that it possesses (1) a large surplus of undivided profits, (2) a very large interest in Springs Mines, (3) the controlling interest in West Springs, (4) through the Schapenrust claims, a large interest in Brakpan Mines, and (5) the recently acquired controlling interest in the Consolidated Diamond Mines of South-West Africa. The importance of this diamond interest can be gauged from the statement made by Mr. Hull, the chairman, in our last issue. The Anglo American Corporation's interest exceeds one-third of the total capital of the new diamond company. The greater part of its holding is in 8 per cent. debentures, which are convertible into shares at par within ten years, and the balance is held in shares subscribed for at par. The Corporation and those associated with it are represented by five directors on the board of the new company.

FUTURE OF THE CONSOLIDATED DIAMONDS.

Inter alia, Mr. Hull in his statement says: "At a recent conference of producers convened by the Government, and held shortly before the Consolidated Diamond Company was established, it was arranged to allocate to the producers of the South-West Protectorate a quota equal to 21 per cent. in value of the annual sales. It is anticipated, however, that an adjustment of the quotas will result, on representation to the Government and to the other interested parties, as it is only fair that the Consolidated Diamond Company, as the chief producer in the South-West Protectorate, should be treated on the same terms of equality as are accorded to the three chief producers in the Union." Mr. Hull quotes Professor Kaiser as saying:

> "If one examines the results of the actual exploitation of the
> "fields and the prospecting work carried on so far, then, in the
> "light of these experiences, one arrives at the result that the con
> "tents of the fields is for certain 14 million carats, and that it
> "will probably amount to 16½ million carats, and this does not ex-
> "haust all the possibilities of the fields. Large sections of the
> "diamond area are only now being prospected. For instance, the
> "result of prospecting during the last few years of the War proved
> "that several companies possessed valuable diamonds deposits not
> "known until then, which have now been included in the estimate.
> "made. By following up the information gained, etc., no doubt
> "new deposits will be proved, and may finally lead to the discovery
> "of a diamondiferous kimberlite fissure, or even of a diamond pipe.
> "This will show that great possibilities for the opening up of
> "further diamond-bearing deposits exist. It follows from the above
> "that it is quite possible that several million—possibly even many
> "millions—of carats may be recovered from the diamond areas
> "in excess of the above estimate. I must still add that, in con-
> "sequence of the amalgamation into one big company, many de-
> "posits which a small company could not exploit economically may
> "now prove profitable."

Mr. Hull also dwells on the fact that the increase in the prices now obtained for diamonds is also a very important consideration. The latest basis price as fixed by the Diamond Selling Syndicate under the new contract exceeds £5 per carat for South-West production. The board of the new diamond combine is of exceptional strength. Messrs. Dalziel and Tait represent the American capital interested, and Mr. Hector Mackenzie, who lately retired from the General Managership of the Standard Bank, is one of their alternates. Another important feature is that the Anglo-American Corporation will take charge of the London and Johannesburg offices of the Consolidated Diamond Mines of South-West Africa, Ltd. An arrangement has also been come to whereby the present Johannesburg organisation of the Consolidated Mines Selection Company, Ltd., will act as a joint organisation for the Consolidated Mines Selection Company and the Anglo-American Corporation in South Africa.

MR. HONNOLD'S VISIT.

It is noteworthy, moreover, that one of the permanent directors of the Anglo-American Corporation, Mr. W. L. Honnold, who has had a long and distinguished connection with South Africa, is now on a visit to this country. Mr. Honnold will represent the Corporation in New York, whence a large proportion of the capital involved in the new undertaking is derived. Mr. Honnold will also, no doubt, watch the interests of the Corporation later on when its shares are introduced on Wall Street.

In conclusion, it would seem that the proposed merger is in the bests interests of all concerned; that it offers many mutual advantages to the two chief participating companies, and that it promises to produce one strong, prosperous undertaking with an assured future of increasing profit and importance to its fortunate shareholders.

THE UNION'S DIAMOND PRODUCTION.

Remarkable Figures for Last Year's Output—Sensational Advance in Prices—Why the Diamond Market is Booming—Analyses of Government Statistics—The Rand's Diamond Output.

Everybody knows that the price of diamonds has advanced by leaps and bounds during the past year or two, but exact information for bulk production has been difficult to obtain and the general public has only had a nebulous conception of what the advance in selling prices has really amounted to. The figures supplied by the Mines Department in the return of mineral production in the Union for the month of January give, however, complete statistics of diamond mining outputs in South Africa for the year 1919, and from this one is enabled to form an accurate idea of the extent to which sales values have advanced and also of the exceedingly prosperous condition of the diamond market at the present time. The rise in value has indeed been phenomenal.

Some Sensational Figures.

The produce of mines for the whole of the Union during 1919 was valued at 75s. 9d. per carat, which is a fifty per cent. advance on the 1918 figures and is about two and a half times as much as was obtained per carat in 1910. Even more sensational is the rise in value of production from alluvial areas. The average value per carat for "river stones," as they are commonly called, throughout the whole Union last year was £13 1s. 6d. per carat, which compares with £6 14s. 6d. in 1918 and £4 0s. 4d. in 1915. In other words, alluvial diamonds have nearly doubled in price during the last year and have more than trebled in value in the past four years. Small wonder that one hears of many diggers who a little while ago were staving off starvation by means of mealie pap and are now owners of motor cars! Small wonder, too, that several civil servants have elected to spend their leave in toil on the diggings and that new diamond syndicates appear on the Johannesburg market nearly every day!

Analysis of Returns.

Taking mines and alluvial fields together, the production for the whole of the Union for last year was 2,588,017 carats of diamonds of an estimated value of £11,734,495, and the total sales amounted to 2,647,228 carats of a value of £12,084,629. The total production of the Union for the past few years has been as follows:

	Carats	Value.
1918	2,537,360·16	£7,114,867
1917	2,902,416·51	7,713,810
1916	2,346,330·21	5,728,391
1915	103,385·73	399,810
1914	2,801,016·57	5,487,194
1913	5,163,546·68	11,389,807
1912	5,071,882·34	10,061,489
1911	4,891,998·55	8,746,724
June to December, 1910	3,043,447·72	4,547,809

It will be seen from the above that last year's output was, from the point of view of value, a record one, although the carats yielded were about one-half of the output in 1913—a fact which speaks eloquently for the advantages resulting from controlling and nursing the market. Taking the figures of production for Provinces and districts, the following analysis of returns is arrived at:

DISTRICT AND PROVINCE.	Mines Producing during December, 1919.	Mines Production Estimated Value. £	ALLUVIAL. Production. Estimated Value. £	ALLUVIAL. Production. Value per Carat. s. d.	TOTAL PRODUCTION. Carats.	TOTAL PRODUCTION. Estimated Value. £
Pretoria	1	1,487,737	137,845	105/8	798,767·57	1,625,582
Klerksdorp	—	—	1,042,705	278/3	74,943·25	1,042,705
Witwatersrand	—	565	—	—	246·69	565
Pietersburg	—	—	2	—	3·75	2
Transvaal	1	1,488,302 Value per carat, 38/6	1,180,552	233/8	873,961·26	2,668,854
Kimberley	1	6,046,190	120,143	304/9	1,396,733·00	6,199,666
Barkly West	—	—	839,301	300/2	55,925·75	839,301
Taungs	—	—	393,491	246/1	31,983·50	393,491
Herbert	—	—	171,143	344/3	9,941·75	171,143
Kuruman	2	1,178	—	—	222·75	1,178
Hay	1	60	143	—	37·75	203
Vryburg	—	—	51	—	5·75	51
Aliwal North	—	—	20	—	4·50	20
Cape	7	6,047,428 Value per carat 87/10	1,521,292	288/3	1,494,854·75	7,605,053
Fauresmith	2	1,348,365	—	—	194,524·25	1,348,365
Boshof	1	39,162	5,945	342/5	15,497·25	45,107
Winburg	4	27,547	—	—	5,559·25	27,547
Rouxville	—	—	27,805	236/8	2·349·95	27,805
Kroonstad	1	9,810	8	—	1,187·16	9,818
Hoopstad	—	—	1,254	—	55·75	1,254
Vredefort	—	—	648	—	22·63	648
Heilbron	—	—	40	—	4·75	40
Smithfield	—	—	4	—	0·06	4
Orange Free State	8	1,424,884 Value per carat 131/8	35,704	256/8	219,201·05	1,460,588
Union of South Africa	16	8,960,614 Value per carat 75/9	2,740,548	261/6	2,588,017·06	11,734·495

The Rand's Contribution.

It is of interest to note that the Witwatersrand yielded diamonds to the value of £565. These were obtained on the Far East Rand from the Modderfontein B. and Van Ryn Deep mines. It is noteworthy that the highest grade produce in the Union was obtained from the Herbert district of the Cape, which yielded 9,941¾ carats of a value of £171,143, or no less than £17 4s. 3d. per carat. The diamonds produced in the Boshof district of the Orange Free State were valued at £17 2s. 5d. per carat.

THE GOLD PREMIUM AND ITS INFLUENCE ON ORE RESERVES.

Transfer of Reserves from the Unpayable to the Payable Side of our Industrial Ledger—Not Less than Twenty Million Tons Involved—Year End Figures for 1919 Likely to Show a Big Advance on 1918.

At the end of 1918 the payable ore reserves of Witwatersrand mines were estimated at ninety million tons, which was approximately a decline of six million tons compared with the estimates of a year previously. The outstanding feature of the year's work on the Witwatersrand in regard to ore reserves during 1918 was that although development was "speeded up" on the Far East Rand the increase in working expenditure compelled the elimination of millions of tons of low-grade ore from the estimates of payable reserves. Since the outbreak of hostilities in Europe and up to the end of 1918, the costs of operation on the Rand increased by the equivalent of 1¼ dwts. per ton, and in consequence large areas formerly reckoned profitable were ruled below the pay limit, whilst at the same time there was a general increase in the value of "pay" ore on account of the rise in costs.

The Rise in Working Costs.

In December, 1918, working costs were 21s. 7d. per ton and by December, 1919, they had risen to 25s. 6d. This is a very substantial advance in the costs of operation and under normal circumstances there would have had to be a further large shrinkage in the payable reserves of the mines as at the end of last year due to the raising of the pay limit. The gold premium has, however, luckily come to the rescue. But for this fortunate circumstance the payable ore reserves of the Main Reef series would have contracted to a figure which would have greatly impaired the credit and stability of the industry. For ore reserves are the stock-in-trade of the Rand and a diminution to, say, not more than fifty million tons would have been highly detrimental to the prosperity of the whole Union.

New Economic Considerations.

On the old basis of gold values an average working cost of 25s. 6d. per ton meant that the mines had to recover not less than 6 dwts. per ton milled in order to pay expenses. Leaving aside any question of profit or dividend to shareholders, 6 dwts. per ton had to be yielded in order to meet the routine of normal expenditure. At the end of 1918 there were thirteen companies with "payable" ore reserves of a lesser value than 6 dwts. per ton. They were as under:

	Tons.	Value per ton. Dwts.
Aurora West	242,200	5·6
Geldenhuis Deep	1,549,600	5·9
Ginsberg	59,149	5·7
Jupiter	674,000	5·98
and	76,000	5·7
Knights Deep	1,671,000	4·43
and	83,000	5·03
Luipaardsvlei	645,000	5·51
New Goch	111,670	5·6
New Kleinfontein	2,048,000	5·78
Rose Deep	2,909,520	5·3
Simmer and Jack	1,538,000	5·67
and	211,000	4·98
Simmer Deep	932,000	5·02
and	42,000	5·15
Van Ryn	1,347,916	5·6
Wolhuter	856,870	5·8

The Problem of the Low-Grade Ore.

Approximately thirteen million tons are represented in the above figures. Although in the case of individual companies special facilities may obtain for economic working, it must be appreciated that in so far as averages for the whole Witwatersrand are concerned these tonnages are below the pay limit of to-day if considered in terms of the old "standard" price for gold and with working costs at the December level of 25s. 6d. Writing of this subject in June last, we remarked:

> "The decrease in ore reserves at so many of the Near East, Central and West Rand mines is due to curtailment of development, the exhaustion of claim area (at the other mines), and also to the elimination of blocks hitherto reckoned payable, on account of the increase in working costs. The unfavourable economic factor has been responsible for the exclusion of millions of tons of ore from the stock-in-trade of the industry during the past year or two. War charges, excessive taxation and increased wages have swept a vast amount of the assets of the industry off the shelves of commerce as being unsaleable. The importance of bringing costs down to a figure which will admit of a large amount of this tonnage being worked cannot be overestimated. Of the ninety million payable tons dealt with in our schedule, no less than forty-five and three-quarter million tons have an average value of 7 dwt. or less per ton. The recoverable value of this tonnage leaves a very small margin of profit with working costs at their present high level, and any further substantial advance in operating expenses would imperil the fate of the bulk of these 45,750,000 low-grade tons which constitute slightly more than one-half of the total ore reserves of the Rand. This undeniable fact is worth pondering on. A further marked advance in working costs would not only sound the immediate death knell of the lower-grade ventures—several are already on the verge of closing down—it would also imperil the operations of most of the medium-grade mines, and if South Africa is to depend for its prosperity on the eighteen companies with ore reserves worth on the average over 7 dwts. the majority of its inhabitants had better petition the Government to effect their immediate emigration to some other country where industry is less harshly dealt with than in the Union of South Africa."

The gold premium has stepped into the breach and relieved the situation. But for this it is obvious that a huge stock of low-grade tonnage would have had to be relegated to the unpayable category at the year's end computation.

Salvation in the Gold Premium.

Since those lines were written gold has advanced in price by nearly 50 per cent. The last monthly returns of the mines estimated the price of gold at £5 7s. 6d. per oz., and since that figure was computed there has been a further substantial rise. Roughly speaking, we can say that although working expenses have risen by something like twenty per cent. since the last annual computation of ore reserves the percentage of increase in the price of the product has risen substantially more than has the cost of operation. This will not only increase the profitable value of the reserves hitherto accounted payable but will also bring into the industrial arena of profitability a very large tonnage, which until the establishment of a premium for gold was accounted unpayable.

A Twenty-Million-Ton Increase.

For the past few years there has been a tendency towards shrinkage in the ore reserves of the Witwatersrand, which are computed annually. But it seems certain that when the annual meetings of companies are concluded and development figures are obtainable in respect of the position as at the end of last year, there will be a substantial increase on the 1918 figures. One authority calculates that not less than twenty million tons will cross the economic border line which separates payable from unpayable ore when reserves are estimated for the forthcoming annual reports. This is a most important consideration and one moreover which we do not think has as yet been adequately appreciated by investors.

Springs Mines.

The following is a copy of a cable which has been despatched on February 27 to the Springs Mines Company's London office: "Owing to the breakdown of the rock hoist at the No. 2 shaft, winding of other than development rock has been suspended since the 25th February, resulting in curtailment of the tonnage crushed to approximately 34,000 tons for the month. It is expected that repairs will be completed by 2nd March permitting normal operations to be resumed as from that date."

DIAMOND RETURNS FOR JANUARY.

South-Western Transvaal Diggings.

The returns from the various diamond diggings in the South-Western Transvaal for the month of January amounted to 8,675 carats value £140,771, as compared with 7,233$\frac{1}{4}$ carats value £125,200 in December, and 7,644 carats value £138,117 in November. The returns for January are officially reported as follows:—

Name and No. of Farm.	Value.
Blesbokfontein 63	£16,316
Bloemhof 130	6,690
Bloemheuvel 171	852
Biesjeslaagte 23	50
Christiana	1,220
Cawood's Hope 79	462
Doornbult 93	858
Diamantdoorns 131	151
Dievedraai 245	3,300
Eerstebegin 290	940
Eastleigh 593	1,049
Goudplaats 318	860
Hollowyay's Rust 142	930
Italie 328	439
Kareepan 137	12,036
Kafferpan 65	1,103
Klipkuil 104	279
Katdoornkraal 163	172
Kromellenboog 108	87
Koppiesvlei 54	8
Koppieskraal	360
Kameelkuil 142	22,197
London 33	2,755
Leeuwfontein 143	3,555
Mooifontein 128	1,113
Middelbosch 326	40
Mimosa	220
Olivenfontein 376	473
Plessisdam 121	3,332
Panfontein 121	152
Rondevlei 129	111
Rietput 120	56
Rietkuil 138	32,209
Schweizer-Reneke	3,622
Syfergat 150	895
Syferfontein 107	12
Sandringham 25	54
Schaapboschdraai	250
Schoongezicht 105	55
Vechtvallei 329	508
Vuurfontein 61	40
Zevenfontein 165	699
Zwyartlaagte 68	15,229
Total	£140,771

OTHER TRANSVAAL AREAS.

Kameelfontein 106	6,500
Bynestpoort 520	4,878
Roodeplaats 314	862
Kaalfontein 402	419
Rietfontein 501	300
Franspoort 426	234
Total	£13,093

PUBLIC DIGGINGS IN THE CAPE PROVINCE.

The output of diamonds from the public diggings in the Cape Province during the month of January was as under (the number of claimholders in Barkly West District being given at 2,064):—

BARKLY WEST DISTRICT (3,374 carats, value £60,438 5s.)

Bad Hope	2	118
Delport's Hope	35	2411
Gong Gong	34	2783
Good Hope	86	6236
Harrisdale	34	4639
Hebron	76	6091
Holpan	27	4176
Jonas Kopje	1	160
Kareepan	16	4638
Keiskama	3	92
Klipdam	58	3522
Klipdrift	62	4826
Last Hope	13	849
Longlands	44	3017
Niekerk's Rush	15	1147
Ricketts' Prospect	8	358
Rosalind	1	60
Scholtz's Prospect	19	806
Union Kopje	2	265
Snyder's Rush	13	1685
Van Zoelen's Laagte	5	281
Waldeck's Plant	41	6424
Ward's Hope	10	1017
Winter's Rush	30	4829

HERBERT DISTRICT (624$\frac{3}{4}$ carats, value £11,234 10s.)

Brypaal	21	999
Davisdrift	5	637
Mosesberg	57	7244
Schmidt's Drift	39	2235
Platdrift	1	75
Sevonelles	2	43

KIMBERLEY DISTRICT (222 carats, value £5,086.)

Robinson's Kopje	13	3445
Wedberg	13	1640

TAUNGS DISTRICT (918$\frac{1}{4}$ carats, value £17,116).

Home Rule	73	16673
Killarney	14	443

PRIVATE ESTATES.

River View Diamond Syndicate	3809
Pniel Estate	3247
New Vaal River D. & E. Syndicate	15041

Trans-Zambesia Railway.

The Colonial Office has informed the Trans-Zambesi Railway Co., Ltd., that the Government of Nyasaland have nominated Sir Reginald Lawrence Antrobus, K.C.M.G., C.B., to be the Government director of the company, and the Hon. Sir Arthur Lawley, G.S.C.I., G.C.I.E., K.C.M.G., to be the Government trustee for the debenture-holders, in connection with the issue of debentures made by the company.

The Pomona Diamonds Deal.

At a special meeting of Pomona Diamonds, Ltd., held this week at Capetown, the following matters were considered :(a) The proposed transfer of the rights of Pomona Diamanten Gesselschaft to a new company; (b) the offer submitted to Messrs. De Pass and Co. for the purchase of 8 per cent. royalty and other rights in the Pomona territory on behalf of the Anglo-American Corporation; and (c) the offer submitted by the Hon. H. C. Hull to sell to the shareholders of the company 18,007 shares of £1 in the new company. Mr. J. G. Van der Horst, who presided, said that the position was that the Anglo-American Corporation offered to purchase the assets of the company for £700,000. This money would be payable in London, but owing to the rate of exchange they would not receive full value here. In order to come to an amicable settlement, Mr. Hull had come forward with the present offer that every shareholder would be entitled to apply for one share in the new diamond company, and if the shareholder wanted to sell, Mr. Hull would repurchase the share at £2 if offered within 30 days. That meant an improvement of £1 per share over the original offer. The money would also be paid in Capetown, and if any shareholder had not the money to pay, Mr. Hull would wait until the formation of the new company.

Though Mr. Van der Horst did not think the offer adequately represented their interests, he could recommend them to accept it, which recommendation the meeting unanimously carried.

JOHN L. SMITH, late of Oldham.—Your father and wife both dead.

Please communicate with J. P. HALL, "Gorse Bank," Oldham, England.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

THE OUTLOOK FOR THE AFRICAN OIL CORPORATION.

Consulting Engineer's Report—Results from Samples Tested—The Question of Plant and Equipment.

In a letter to the shareholders of the African Oil Corporation, the directors state:—In presenting Mr. J. E. Mills Davies' report upon your properties together with the accompanying plan, there are one or two points not referred to in the report which the board wish to lay before you. In January last the board was approached by one of the shareholders to send a sample of the shale to Mr. James Wilson at Durban, who is engaged upon research work in connection with the distillation of coal and shale. The following is Mr. Wilson's reports on the sample of shale sent him:

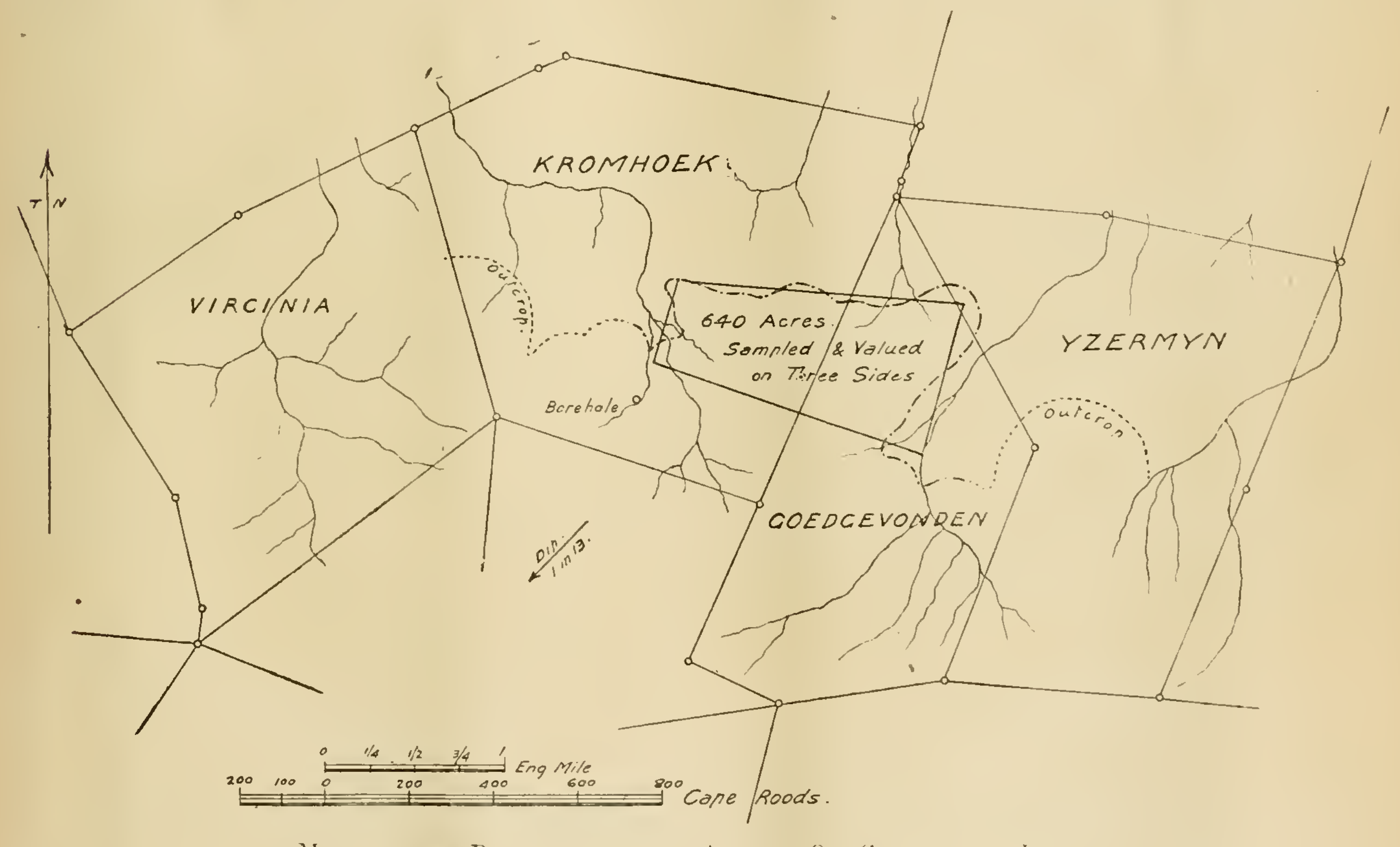
Proximate Analysis.

"Moisture, 2·9 per cent.; volatile matter, 29·9 per cent.; fixed carbon, 10·8 per cent.; ash, 56·4 per cent. Crushed a sample to pieces about 1½ in. x 1 in. x ¼ in., weighed 2,000 grams, and charged retort at 9 a.m. at 9.30 a.m.; the retort temperature reached 800 deg. F., which was maintained until 2.30 p.m. At 3.30 p.m. the retort was discharged and a sample taken of the spent shale, which gave a volatile hydrocarbon content of 4·6 per cent. The oil well yielded 427·60 grams oil and watery liquor which on standing 24 hours separated into 417·6 grams crude oil and 10 grams ammonical liquor. The specific gravity of the oil (temperature reduced to 60 deg. F. by placing vessel containing the oil in ice water) determined by Beaume scale 30 deg. = 0·87 specific gravity. 30 deg. Beaume equals 7·3 lbs. per gallon, therefore $\frac{417\cdot6}{7\cdot3}$ 57·2, gallons water free oil per ton. Sufficient gas was given off to heat the retort. The oil was of excellent quality, and after splitting out the petrol and lubricating oils the residue would revolutionise railway locomotion work in South Africa.

"(Sgd.) James Wilson."

Plant and Equipment.

The board is of opinion that in view of the vast tonnage disclosed in the comparatively small section of the company's properties so far proved, as dealt with in Mr. Mills Davies' report—a tonnage which would keep a plant capable of handling 300 tons a day in full operation for 40 years—that the question of plant and equipment for the property should be at once taken up. The board has been fortunate in securing the services in this connection of Mr. H. J. Ibbotson, until recently manager of the Natal Ammonium, Ltd., and after careful investigation and inquiries there is no reason to doubt that Mr. Ibbotson is thoroughly qualified to advise the board on this all important question. Mr. Ibbotson will shortly be visiting the properties with a view of making the lay-out plan, and he will then proceed to England with a bulk sample of 60 tons of shale which will be subjected to a practical test under his own personal supervision, and the result of this test will determine the nature of the plant required and will enable the plans therefor to be prepared. In the meantime the active opening up of the area so far proved will be proceeded with with the utmost dispatch. It appears to the board that in view of the vast tonnage of oil shale which the properties promise to contain, the question of the sub-division of the area is one which will have to be considered in the near future in order to do full justice to the venture. This is a matter which the board will carefully go into when further exploitation work has been done.



Map showing Properties of the African Oil Corporation, Ltd.

Consulting Engineer's Report.

Mr. J. E. Mills Davies, the consulting engineer, writes: I beg to hand you the following report upon the work done on your properties to date. Prospecting on the main shale was begun upon the properties in September last. For various reasons labour has not been easy to obtain, but a large quantity of work has, nevertheless, been accomplished. Operations were begun near the middle of Kromhoek at a distance of about three miles from your extreme western boundary on Virginia and three and a half miles from your eastern boundary on Ijzermijn, the total distance across your properties in a direct easterly and westerly line being roughly six and a half miles. Work was extended eastwards by means of cuttings into the oil-shale outcrop at intervals of 200 or 300 yards, with the object of discovering the average thickness and value of the main seam. The shale has been traced eastwards from the starting point to within about three-quarters of a mile of your eastern boundary, and to the joint boundary of Kromhoek and Virginia in a westerly direction. The total length of outcrop defined so far is approximately six miles. Of this distance some three miles have been sampled and valued by means of the cuttings above referred to. Over the remainder of the distance more detailed exploratory work remains to be done before a valuation is carried out. A borehole has recently been started on Kromhoek at a distance of 500 yards from the outcrop, on the dip side, with the object of obtaining information about the coal seams and other shale beds which occur in the strata below the main oil-shale seam.

Valuation Results of Main Oil-Shale.

Sampling and analyses of the shale exposed in the various cuttings along the outcrop, above referred to, have been carried out by me, and later by the Central Mining and Investment Corporation, Ltd. As already explained, in an earlier report, the oil-shale seam is divided into three sections, known as the " top shale, blass or inferior shale, and bottom shale," the total thickness comprised being between 5 and 6 feet. The results of the sampling and analyses are as follow:

	Av. Thickness. Inches.	Av. Value Gallons per short ton.
Top shale—A.	21·1	27·2
B.	21·6	24·3
Bottom shale—B.	9·0	16·2

A. denotes the result of my examination, and B. those of the Central Mining and Investment Corporation. The figures given to you in my previous report were different from those given above because they were based upon the long ton of 2,240 lbs. instead of upon the usual short ton of 2,000 lbs. I was unable to make a complete examination of the " bottom shale " owing to circumstances previously explained. With regard to the difference between my estimate of the crude oil contents of the " top shale " and that of the Corner House chemist, I may explain that both sets of analyses were made in your field laboratory but that the conditions, as far as the retorting of the samples was concerned, were more favourable in my case. I think this fact is sufficient to account for most of the difference referred to, and would also indicate that the B. values of the " bottom shale " are lower than they would otherwise be. At any rate it is a fact of some importance that the results differ so slightly in an investigation which was extended over some three miles of outcrop.

Area and Tonnage Proved.

The oil-shale outcrop thus sampled and valued is shown upon the accompanying map. It will be seen that the valuation extends around three sides of an irregular figure of which the area is closely represented by the rectilinear figure. I consider that the results of the three sides may safely be taken as representing a fair average value for the whole block. By carefully weighing a portion of the " top shale " I have estimated that 17·6 cubic feet of shale make a ton of 2,000 lbs. This is equivalent to saying that there are 200 tons per acre per inch of shale thickness. There are in fact about 6 tons per inch per acre more, but 200 is a convenient figure to use. Over a thickness of, say, 22 inches, which is likely to be correct enough for shale a little further removed from the outcrop, we have 4,400 tons per acre. The area shown as proved on the accompanying map is equal to one square mile, and contains therefore 640 acres, or 2,816,000 short tons of shale. Taking my figures, and a selling price averaging 3s. for the various products of a gallon of crude oil, we have at 81·6 shillings per ton for 27·3 gallons, a total value of £11,489,280 for the yield of the area mentioned. Taking the figures of the Central Mining and Investment Corporation, Ltd., or 72·9 shillings for 24·3 gallons, we have a total value of £10,281,320 for the crude oil contents of the same area. If on the same basis of calculation we include 1,132,000 tons of bottom shale at 48·6 shillings per ton, there is a further sum of £2,799,360 to be added to the amounts above quoted, making respectively: A. £14,288,640, and B. £13,063,680 as the total selling value of the oil products from a square mile of main oil-shale. The area under discussion represents about one-fifth of the whole area between the outcrop of the main shale, as far as it has been traced, but not valued, and the boundary of your properties to the dip of that outcrop. It constitutes a still smaller proportion of the main shale which will altogether have been located when Virginia and the remaining portion of Ijzermijn have been prospected. In other words, an area which is considerably less than one-fifth of the total shale-bearing area of the company, and is probably not more than one-eighth of that area, contains by calculation approximately 4,000,000 tons of payable shale of an estimated value of not less than £13,000,000. With working costs not exceeding £1 per ton for mining, refining and other expenditure, a figure which I consider to be reliable, and one which has been confirmed by a competent authority, there remains an estimated profit of about £9,000,000.

Present Operations.

Labour has become more plentiful and prospecting is being rapidly extended. With the approach of better weather the work will be facilitated. Sampling and testing will be carried up to date as soon as possible. I am making a survey of the prospected area, which will be completed during the next fortnight. So far the survey has been made only upon the portion which has been sampled and valued.

Docker Bros. Limited

Saltley, Birmingham, England.

High-class Varnishes, Paints and Enamels
for all Climates.

White Enamel - - - Railway Varnish.

Dockers' "HERMATOR" PAINTS are specially prepared for all kinds of iron and steel structures, and every description of engineering work.

Speciality: DOCKERS' "PREMIER" WHITE ENAMELS, mat and glossy, for interiors.

Sole Representatives for the Union, Rhodesia and Mozambique:—

EDGAR ALLEN & Co., Ltd.

(G. F. WILLS, Manager),

5, NEW CLUB BUILDINGS, JOHANNESBURG.

THE YEAR WITH THE AFRICAN BANKING CORPORATION.

A Prosperous and Successful Period—Difficult Conditions Overcome—Trade and Industries Reviewed.

The fiftieth ordinary general meeting of the African Banking Corporation, Ltd., was held on Thursday, 15th January, 1920, at Winchester House, 50, Old Broad Street, E.C., the Right Hon. the Earl of Selborne, K.G. (chairman of the corporation), presiding.

The Chairman said: Ladies and Gentlemen,—If you will take the report and statement of accounts as read, I will briefly deal with the figures of the balance sheet. You will, on looking at the figures, see that our cash is £3,131,996 9s. 1d., or £1,159,000 more than last year. The increase is accounted for by the large increase in our current accounts and deposits, and I will refer to this point of cash further on. The securities are £1,048,255 8s. 0d., or about £240,000 more than last year. They are taken in at market prices ruling on the day of balance, all depreciations having been written down. Bill of exchange purchased at £2,148,929 18s. 7d. are about £280,000 down as compared with last year. These are maturing daily, and, together with our cash and securities, represent about 62 per cent. of our liabilities to the public. Bills discounted, loans and advances at £5,105,154 12s. 10d. show an increase of £979,000 over last year. Acceptances, etc., are £102,813 15s. 4d., and bank premises, etc., are £194,503 12s. 1d., or about £7,000 less than last year. You will notice from the profit and loss account that we have again set aside £10,000 for depreciation of our premises, and all our premises are kept in thorough repair. On the liability side our paid-up capital now stands at £1,000,000 as the result of the issue of 80,000 Shares which we made at the beginning of last year. The premium on these new shares—namely, £40,000—together with £30,000 taken from our profits, makes our reserve fund £360,000. Our note issue at £388,584 10s. 0d. is slightly down on last year' figure, and this is partly accounted for by restrictions on exchange operations, to which I will presently refer. The amounts of our current accounts and deposits, £9,491,526 0s. 4d., shows an increase of £1,603,000. Drafts issued are £265,990 3s. 7d., and rebate stands at £35,073 3s. 9d. The total of our balance sheet figures is increased by £2,043,038 3s. 5d. With the amount carried forward from last year—namely, £36,013 4s. 2d.—our total profits are £463,486 13s. 2d. (or £84,500 more than last year), after deducting interest on deposits, bonus to staff, and providing for income tax and all bad and doubtful debts. Charges are higher at £233,640 8s. 9d. (or £41,223 18s. 1d. more). Rebate is £35,073 3s. 9d., and depreciation of furniture £2,107 5s. 1d. As I have already said, we place £10,000 to premises account and £30,000 to reserve fund; £5,000 is added to the Staff Guarantee and Savings Fund and £20,000 to the Pension Fund. Out of the balance of £127,665 15s. 7d. we paid £40,000 for an interim dividend in July, and we now propose to pay a dividend of £50,000, representing a final dividend of 5 per cent., or at the rate of 10 per cent. per annum, making a total dividend of 9 per cent. per annum for the year.

We consider this is a favourable statement to put before you. You may remember that when I last had the pleasure to address you I pointed out that while South Africa had for the past few years enjoyed unprecedented prosperity, yet at the period of the Armistice large stocks were held at high prices, and that in the event of a heavy drop in prices considerable trouble might arise, especially in the cases of those who had not been prudently setting aside a percentage of their profits in reserves to meet any such depreciations. At the same time, I indicated that if the situation was met calmly, stocks reduced and imports cut down, and time given for matters to right themselves, there ought to be no great trouble. I am happy to be able to say that that is how things appear to be turning out up to the present, although we have yet to face probably a heavy fall in prices. From the reports to hand, however, I find that prices have been well maintained, and this has had a tendency to check importations or speculation, thus allowing stocks on hand to be gradually worked off, and owing to the cancellation of orders, the shortage of goods in England, and the keeping up of prices, the position is gradually easing off. It will be some time yet before certain lines of stocks now in South Africa—especially cotton goods—are fully absorbed, but when a decline in prices does take place South Africa is now in a better condition to meet it. Although, as I have said, I consider our statement of affairs a good one, yet it might have been better except for one condition of affairs which I can only briefly refer to, and that is the embargo on the shipment of sovereigns from this country. With the increase in our capital and cash resources we were in a position to do better than we have done, but the tendency of exchange has been to fill us up with money on this side, and we have been unable to get the licence of the Treasury to export sovereigns to enable us fully to employ our funds in South Africa or do all the business that was offering to us there. Consequently we have not been able to open all the credits required of us nor to expand our business in other directions in the way that opportunity offered to us, and this also accounts to some extent for the reduction of our note circulation, to which I have alluded. You will not expect me, nor do I think you would consider it desirable for me on this occasion, to discuss the policy of the British Treasury in this respect. I merely state the fact.

At the same time we have not been standing still, but have been devoting our energies to extending our connection in South Africa wherever we had the means and the staff to do so. During the War, at the request of the Union of South Africa Government, there was an agreement among the South African banks not to open new branches. That agreement ceased to operate on the conclusion of hostilities, and since that date we have opened the following branches:—Fransch Hock (Paarl), Caledon Street (Capetown), Durbanville (Cape Province), Stanger (Natal), Pritchard Street West (Johannesburg), Plumstead (sub-branch to Wynberg), Philadelphia (agency to Durbanville), Whittlesea (agency to Queenstown), Klipdam (Capo Province), Springs (Transvaal), Sea Point (sub-branch to Capetown), De Doorns (Cape Province, agency to Worcester).

Generally speaking, from a banking point of view in South Africa, the year has been one of considerable difficulty. Immediately following upon the close of the previous financial year, an epidemic of influenza of exceptional severity—from the effects of which the country has barely yet recovered—swept the whole sub-continent, paralysing and dislocating business, with more disastrous effects than resulted from the War. Closely following on the influenza epidemic came the signing of the Armistice, and with large stocks of goods held in the country at high prices, a somewhat serious situation arose. With an increase of shipping facilities manufacturers commenced forwarding goods which had been ordered eighteen months and two years ago, thus adding to the congestion, and had it not been that prices were well maintained, importations for some time would have been greatly checked. Indents, however, are now coming forward more freely, and the high prices ruling should tend to keep importations within normal demands and check speculation.

When we turn to the import and export figures of the Union of South Africa for the nine months ended 30th September, 1919—the date of our balance—imports amounted to £37,298,931, as compared with £36,370,740 for the corresponding period of 1918, an increase in value of £928,191. These figures do not include specie importations, which are not yet published. For the same period the value of exports from the Union amounted to £37,255,317, as compared with £25,211,962 for 1918 or an increase of £12,043,355, and these figures do not include gold. The following are the notable increases:—Diamonds, £2,928,284; wool £5,117,132; hides and skins, £1,407,065; and ostrich feathers, £1,070,260. For the same period for Rhodesia the imports were £2,524,171, as compared with £2,280,242 for 1918, or an increase of £243,929; and exports £1,724,824, as compared with £1,989,427 for 1918, or a decrease of £254,603, and these figures do rot include raw gold.

For several years past—since the commencement of the war—farmers generally have had good seasons and excellent markets, the prices realised for produce reaching figures undreamt of in pre-War days—wheat, for instance, now realising as much as 40s. per bag, as against 18s. 6d. prior to the war. Owing to the prolonged drought this year—said to be the worst for the past twenty to thirty years—the prospects of the present season's crops, with the exception of those in the western province of the Cape, are very unfavourable. There is still a strong demand for wool, unheard-of prices are ruling, and the prospects of the trade at present are bright. It stands to reason, however, that the present exceptional prices cannot continue indefinitely; whether they will recede rapidly or gradually is a vital question, which all financially concerned, and more especially we as bankers, must keep in mind. Much will depend on the sustained demand for wool from Continental and other countries. Record prices are also being obtained for mohair, hides and skins, the markets for which continue firm. A revival has during the past year taken place in the ostrich feather trade. It will be remembered that at the beginning of the War the market for feathers slumped, and, through the whole period of the war, little or no business was done. In December last, however, considerable activity took place on the Port Elizabeth market, largely due to the operations of speculators, and ever since then dealings in feathers have been very satisfactorily carried on there, and the market is now generally regarded as fairly stable.

It is satisfactory to be able to report steady improvement in regard to the wine and fruit-growing industries. The wine-growing industry is, in fact, flourishing. Last season the prices obtained for wines were exceedingly high—£12 to £15 per leaguer—and it is confidently anticipated that these figures will at least be maintained in the coming season. The fruit-growing industry is still handicapped through the lack of proper shipping facilities in the way of cold storage space, but, as a compensating factor, this difficulty has greatly stimulated the forward movement in the dried fruit industry, which is now well established. Tobacco growing is in a flourishing condition and there is an ever-increasing demand for South African leaf. The tea producing industry is thriving and the crop for the year is a very good one. The demand in South Africa for Natal grown tea of the better quality is in excess of the supply. The stoppage of Indian immigration is somewhat affecting the sugar industry; nevertheless, more ground is being brought under cultivation every year, and the industry is now approaching a point when production will more than supply the needs of South Africa. This season's crop is expected to be a record one, estimated at 150,000 to 170,000 tons, which is adequate for the needs of the whole Union. The price is now controlled by Government and fixed at £29 per ton. Generally speaking the prospects of the sugar industry appear bright.

Coal is being produced in increasing quantities. The recent miners' strikes in England and Wales have turned the attention of the world to the excellence of South African coal. It is eminently suited for bunkering purposes. The industry, however, is suffering severely from the inability of the railway administration to provide the necessary rolling stock to enable the collieries to meet the increased demand. The wattle bark industry is growing apace, and factories for the manufacture of wattle extract are now working in several places in Natal with satisfactory results. It has been proved that cotton can be successfully produced, and this industry is developing well in the northern part of Natal, where ginning plants are being established at several points. The crop this year is expected to yield about 3,000,000 lbs. of seed cotton, giving 1,000,000 lbs. of lint. In a few years the cotton industry may prove a very valuable industry to South Africa, but at the present time there are difficulties to be overcome in the way of procuring trained and systematic labour, so that the crop can be economically grown to successfully compete with other cotton-producing countries.

During the years of the war much has been accomplished in the way of fostering industrial enterprise in South Africa—both agricultural and manufacturing—to ensure permanent prosperity and economic stability, which is exactly what we want in South Africa to-day. Generally speaking, South African manufacturers in the past have been of the simpler order and the scale of production comparatively small. The period of the war, however, has seen a considerable advance, not only in the scale of production, but also in the range of articles produced. One has but to look back to the period of, say, five years previous to the War and compare the position of South Africa then in respect to agricultural and manufacturing industries with what it is to-day to realise the extent of the real progress achieved. The chief difficulties to-day in the way of the development of South African industries are the comparative dearth of our white population, the high cost of living and the considerable expense and difficulty in obtaining skilled labour. So long as these disabilities exist the natural development of industrial enterprise will be hindered and the cost of production maintained at a higher figure than it ought to be in view of the mineral and agricultural wealth of the country. Suitable immigration is one of the country's crying needs.

The output of gold to 30th September, 1919, was valued at £26,700,000, against £27,300,000 for the corresponding period of 1918. The difficulties experienced in getting native labour sufficient for the mines and to cope with development still exist. Nevertheless the arrangement by which the gold mining companies are enabled to sell their gold in the open market and get the high premium ruling should considerably benefit the gold mining industry and prevent some of the lower grade mines from closing down. The diamond industry continues to do well. The demand for these precious stones is strong and, owing to the policy adopted of restricting the output to the demand, the market continues to be well maintained and prices rule high. The output for the nine months ended 30th September, 1919, was valued at £7,321,313, against £5,943,609 for the corresponding period of 1918.

That, ladies and gentlemen, is my review of your balance-sheet, and of the position in South Africa, which we as a bank, have to meet. I have only one thing to say about the political position in South Africa, and that is to express my very deep regret at the death of General Botha, which has taken place, you will remember, since our last general meeting. He had a position and a record in South Africa which nobody else can emulate. General Smuts, who has taken his place, is a man of the highest distinction. He has become much better known to us by his work here in London during the War than he was before the War, but his position, neither in the Empire, nor in South Africa, is the same as that which General Botha enjoyed. We can only, while expressing our deep sorrow at General Botha's death, wish and hope that General Smuts may be successful in the extremely difficult task which he has in hand, and to which he has set himself; that is, of establishing a concord of the two great races in South Africa within the Union of South Africa, within the British Empire. (Hear, hear.) I have much pleasure in moving the adoption of the report. (Applause.)

Mr. Robert Littlejohn (deputy-chairman): Ladies and Gentlemen,—I have pleasure in seconding the resolution which has been proposed by the Chairman. I have perhaps all the greater pleasure in doing so as this, the fiftieth report and balance-sheet, is, I think, the most satisfactory yet presented to the shareholders. (Hear, hear.)

No questions being asked, the resolution was put to the meeting and carried unanimously.

The Right Hon. Earl Midleton, K.P., proposed the re-election of the retiring directors, the Earl of Selborne and Mr. Robert Littlejohn, remarking that, after the speech the shareholders had heard from his Lordship and the admirable position in which the bank found itself, they would feel that as Chairman he was the right man in the right place. (Applause.)

Mr. W. J. Thompson seconded the motion, which was unanimously agreed to.

The auditors (Messrs. Price, Waterhouse and Co.) were then re-appointed, on the motion of Mr. T. P. Patterson, seconded by Mr. Robert Harris.

Mr. Maxwell moved a hearty vote of thanks to the Board, the manager and staff in England, and the general manager and staff in South Africa, also the New York staff. The shareholders, he said, thoroughly understood the very difficult and responsible duties which they had to perform in times like these.

Mr. Hepburn seconded the motion, which was passed unanimously, and the Chairman having briefly acknowledged the compliment the proceedings terminated.

ALLEN, WACK &
SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

TWO
WINNERS

DANIEL'S "SPECIAL P.P.P." PACKING
in all sizes from ¼ in. to 1½ in.

"RAINBOW" STEAM SHEET PACKING
1/32 in., 1/16 in., ⅛ in., ¼ in. thick.

CHEAPEST IN THE END.

SOLE AGENTS:
National Trading Co.,
53/56, CULLINAN BUILDINGS,
JOHANNESBURG.
Box 2762. Telegrams: "GLORIA." 'Phones 1205 & 1250

THE UTILISATION OF SOUTH AFRICAN WASTE COAL.

Investigation of an Important Problem—Our Annual Wastage, 1,000,000 Tons—Investigation Decided Upon—Advisory Board's Report—Three Methods of Utilization—Carbonisation Method Promising.

It has been estimated that approximately one million tons of coal are wasted every year from the collieries of South Africa. Waste is a necessary accompaniment to coal mining, and is not peculiar to South Africa. At the same time the problem of the utilisation of this waste coal has received serious attention in various coal-producing countries, and in the United Kingdom a Fuel Research Board was constituted in 1917 by the Imperial Government to study the matter. In South Africa, too, the problem has not been lost sight of. It has, in fact, been receiving the serious attention of the Department of Mines and Industries for a long time past, and some months ago the Department asked the Advisory Board of Industry and Science to investigate the possibilities of utilising this waste product. The Board appointed a sub-committee, consisting of Professor G. H. Stanley and Dr. W. A. Caldecott, to inquire into the matter, and the following report has now been furnished.

Before quoting this Committee's report it may be observed that the Government Mining Engineer (Sir Robert Kotzé) in 1917 advised the Department that, although the percentage of wase coal is fairly high it is constantly going down, and is likely to continue doing so. In 1910 the percentage calculated on coal sold was about 32, but since then the power companies have been buying the fine waste formerly dumped, and the sale of "peanuts" has also increased, thus accounting for the fall in recent years.

The following are the amounts of discarded waste, expressed as a percentage of the coal sold, for all collieries in the Union :—

1910 (seven months)	32 per cent.
1911	30 per cent.
1912	24 per cent.
1913	21 per cent.
1914	19 per cent.
1915	19 per cent.
1916	20 per cent.
1917	.18 per cent.
1918	16 per cent.

It is considered that a certain amount of waste is inevitable in the early days of any industry, and our coal mining industry, Sir Robert points out, is still in the infantile period.

THE COMMITTEE'S REPORT.

In considering methods for the utilisation of waste coal the question should not be entirely divorced from that of the obtaining of a better or complete utilisation of all the coal mined, which has recently been receiving so much attention oversea, more especially as a better utilisation of coal in general obviates the production of dump coal.

Coal is, of course, mainly utilised as a fuel directly for various purposes, but is more and more becoming, by suitable treatment in connection with its use as fuel, the source of an enormous range of chemical products, the use and demand for which continually increases.* Tar, benzol, pitch, and ammonium sulphate are among the more easily obtained. Many others, of course, being the products of closely specialised industries, for which these form the raw materials.

For heating purposes alone, in connection with furnace firing, more efficient methods could very frequently be employed, *e.g.*, recuperative systems; and it may be noted that the use of powdered coal is largely extending elsewhere, and is attended with considerably increased efficiency and economy. Coal-dust firing is already used in South African cement works, and has been experimented with in the Bettington boiler. Nevertheless, the applicability is somewhat limited, and no by-products are obtained.

The full utilisation of coal, however, calls for the production of the various by-products it is capable of yielding by suitable treatment, as well as for the most efficient means of using its full value.

Under local conditions, and for various reasons (*e.g.*, it would call for very heavy capital expenditure and the scrapping of a vast quanity of existing plant), a very full utilisation can scarcely be expected; nevertheless prevention, or at least a considerable reduction, of the waste now occurring should be possible by directing attention to the dump coal at present unutilised.

In considering the question of the utilisation of coal there are two points of view which must not be lost sight of, and which are to a great extent conflicting.

These two points are, (1) the natural, *i.e.*, the conservation of natural resources of the country, and (2) the individual, *i.e.*, that of the colliery owner, the obtaining of the largest immediate profit per ton. There is, moreover, the user to be considered, who needs his coal, heat, or power as cheaply as possible.

However, under (1) a complete utilisation under a given set of existing circumstances might well be technically impossible or financially unprofitable, while under (2) the exploitation of natural resources may be carried out in such a manner that a very large proportion may be absolutely wasted in order to secure an immediate individual advantage.

Obviously, the colliery owners want to mine and sell as much as possible, and have no interest in economical methods of burning. They are only concerned in the utilisation of the stuff they cannot sell.

Obviously, too, nothing can be done unless profits are made, but Government should exercise some control, and require that, though complete utilisation may be impossible under the circumstances, no avoidable waste take place.

With the present methods of coal utilisation in vogue the preference on the part of consumers for lump, or round coal, necssitates the separation of the small, or duff coal, from the run-of-mine coal before sale. By the use of special grates, etc., a very considerable utilisation of the small coal is made for boiler firing by large power producers. Nevertheless, a considerable amount remains at present unused, and goes to the colliery dumps, and it is this dump coal to which the Imperial Institute report of 21st January, 1919, refers.

The report indicates three methods by which such dump coal may, in certain circumstances, be utilised.

(1) Burning for production of electrical power.
(2) Briquetting the coal.
(3) Carbonisation.

In connection therewith the following remarks may be offered with respect to South African conditions :—

PRODUCTION OF ELECTRICAL POWER.

(1) This is the means by which at present a large quantity of dump coal is disposed of, *e.g.*, by the Victoria Falls Power Company. An increased consumption in this direction might be possible if other concerns followed their example, but a very considerable increase could scarcely be anticipated except in connection with increased demand for the power produced. This would arise in connection with the electrification of railways serving the coal district. Any factor tending to cheapen the cost of power for this purpose would, of course, facilitate the scheme, and it would, therefore, be advisable not to follow the present practice of burning the coal direct under boilers, by whcih no by-products are recovered, but to burn in producers [possibly in conjunction with method (3)], and so produce concurrently with fuel gas, a valuable amount of ammonium sulphate and some tar.

KINGHORN'S PATENT METALLIC VALVES
FOR
PUMPS of all Descriptions

ALL SIZES NOW IN STOCK.

SOLE SOUTH AFRICAN AGENTS :
GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add : "ROPES."

---

* See Coal : Its Value as a Raw Material for Distillation Products. By Prof. J. A. Wilkinson. "Journal of Industries," Dec., 1918, Jan.-Mar., 1919

It has been demonstrated in South Africa (*e.g.*, at Vryheid) that these "by-products" alone are capable of yielding a profit, and it is obvious, therefore, that power would be very cheaply produced indeed if the outlet for it existed.

The gas could be used to fire boilers, as in current practice at blast furnaces and coke plants, but is rather more efficiently employed in large gas-engines, as well as for general heating purposes. Power would thus be generated probably for less than ¼d. per unit.

When cheap power thus becomes available industries utilising it quickly arise, and if the demand should, in present industrial centres such as the Rand, increase beyond the capacity of existing plants, such centres are within the range of possible power distribution from the coalfields.

Furthermore, the quantity of round coal required would be reduced by the railway ceasing to need it for locomotive use where electrification took place, and this in turn would diminish the concurrent production of small.

Nevertheless, power requirements, even with the better utilisation forecasted, would doubtless increase so as to call for at least the present output, and the proposed iron and steel industry will prove another factor operating in the same direction.

POSSIBILITIES OF BRIQUETTING.

(2) From the national point of view the briquetting of the small coal would offer an immediate prospect of utilising that part of the small coal not used for boiler firing to replace round coal both in domestic and industrial firing, and so diminish the amount of round coal burned. This, in turn, would reduce the amount of coal mined and small produced, so that all the coal mined would be utilised, or, in other words, no more would be mined than could be utilised.

But dump coal is not, in our experience, of as good quality as the round or even run-of-mine coal from South African collieries.

Briquetting it would, therefore, yield a fuel of lower value, and the difference in price between briquettes and round coal would have to be considerable to attract consumers, though, on the other hand, they may store better.

In view of the fact that round coal averages, say, 5s. 6d. per ton, and the cost of briquetting has been given, under favourable conditions in the United States of America as 20 cents per ton—presumably bare working cost—the commercial possibilities at present seem rather doubtful, the cost of briquetting here being scarcely likely to be less than 4s. per ton.

About 6 per cent. of pitch is required as a binder, and, if imported pitch had to be used, the cost of this amount would scarcely add less than 10s. per ton, and so render the cost of briquetting prohibitive. Even if locally produced as a by-product of coke works wtih tar distilling plant, it would scarcely be obtainable at less than £2 per ton, and at that price would add nearly 2s. 6d. per ton.

CARBONISATION.

(3) Carbonisation in retorts or ovens would, in general, only be suitable if the carbonised residue could be readily utilised, though even by this method it might be possible, in view of the high local prices of other by-products, to make profits, even when it, and the gas, are wasted.

Certain Transvaal coals will cake,* and produce a coke which, both from the chemical and mechanical standpoints, would be a satisfactory blast furnace or foundry, but unfortunately the majority, as far as is at present known, are either non-caking or do not produce a satisfactory coke.

Moreover, the dump coal alone will not produce such a good coke as run-of-mine, and it follows that the proportion of dump coal which can be utilised for coke manufacture is likely to be relatively small, although such as is suitable will doubtless be utilised in the prospective iron industry coke for which may require 150,000 tons of coal per annum.

It is true that the carbonised residue, even if non-cooking, could then be used for production of power gas, via gas producer, and to a limited extent for other purposes, such as smokeless domestic firing, but the present power requirements, unless the collieries were to compete with their present customers, would not use more than a fraction of the coal available. However, in connection with the electrification of railways and the proposed iron and steel industry, outlets would be found.

The former would require a large power production, while the latter will need fuel gas for furnaces. It will be seen, therefore, that of the methods suggested—

(1) Depends entirely on a greatly increased demand for cheap electrical power;
(2) Is unlikely to be applicable, on account of cost;
(3) Apparently offers a promising field for investigation. The by-products, tar, pitch, benzol, ammonia sulphate, etc., would command remunerative prices locally, and there is always a world market in addition.

The gas and carbonised residue could be used for power production, and further ammonia recovery if, and when, the demand arose, and would enable it to be very cheaply supplied, but so much of the residue as forms a usable furnace coke would be sold as such.

It may also be noted in connection with (1) that if the coal, instead of being burned under boilers as usual at present is first gasified in producers, the by-products obtainable may render the operation profitable, even in the absence of a power scheme, which would doubtless materialise at a later date.

Estimates made by Mr. S. B. Bilbrough,* in a paper before the S.A. Institute of Engineers in 1916, may be quoted here, no allowance being made for value of gas produced.

Particulars of Plant Retorting 200 Tons per Day for Tar and its Distillates with Ammonia Recovery from Gases and all Coke.

Sales	Per ton of coal 2,000lb. s.	d.	Per 72,000 tons per year. £
Tar and its distillates, 12 gals. at 1s.	12	0	43,200
Sulphate from gases, and all coke at 100lb. per ton	12	6	45,000
	24.5	0	£88,200
Expenses.	**Per ton of coal. s.**	**d.**	**Per 72,000 tons per year. £.**
Duff coal	2	0	7,200
Working expenses—Retort plant	3	0	10,800
Working expenses—Sulphate plant	5.3	0	19,200
Depreciation 7 per cent., or £130,000	2,5	0	9,100
	12.8	0	£46,300
Profit	11.7	0	£41,900

Capital Outlay—

Retorting plant	£60,008
Producers and ammonia plant	70,000
Working capital and extras...	70,000
	£200,000

Rate of profit, 21 per cent. Return per ton of coal 13. 7s.

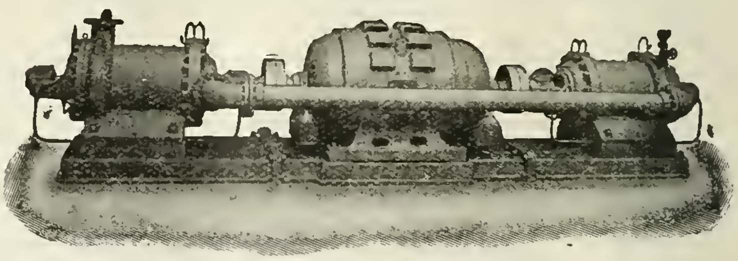
He also estimated that, by burning the coal in producers at the rate of 200,000 tons per year, and wasting the gas, the return per ton of coal with ammonium sulphate at £14 per ton would be 8s. Sufficient to yield 18 per cent. on a capital of £300,000, or 25 per cent. at £16 per ton. (War price has been as much as £43.)—From the *Journal of Industries*.

---

* See Iron and Steel in the Union of South Africa. By Prof. G. H. Stanley, *Journal of Industries*, December, 1917.

* The Prospects of the Carbonisation of Coal, with By-products Recovery, as a South African Industry. By S. B. Bilbrough, October, 1916.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN
MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

ENGINEERING SECTION.

A TECHNICAL DIGEST.

An Underground Loading Pocket—Distillation and Origin of Petroleum.

AN UNDERGROUND LOADING POCKET ADAPTED FOR HEAVY ORES.

By John S. Watts, New Glasgow, Nova Scotia, in the "Canadian Mining Journal," January 16th, 1920.

The drawings accompanying this article, show a highly successful underground loading pocket, installed last year, in the submarine iron mine of Nova Scotia Steel & Coal Co., at Wabana, Newfoundland.

The product of this mine is a hard iron ore, and is mined in large lumps, frequently in cubes measuring three feet each way, and weighing over two tons each.

These heavy pieces make it a difficult proposition to control the loading by any of the ordinary varieties of gates. The design shown in the drawings is the result of much thought, and has proved successful, beyond all expectation.

The original intention was to break the larger pieces of ore, in the mine allowing no piece with any dimension of over two feet to get into the pocket.

This limit has, since, been raised to three feet, as it was found, by experience, that that size gave no trouble, and, as a matter of fact, larger pieces even than three feet have been passed through the gate without sticking.

The method of operation is to bring the ore from the working faces, in small cars, to the tipple shown in the drawing above the pocket. The tipples empty the cars by upsetting them, and return the car to its upright position by gravity.

The centres of gravity of the car and tipple, are so arranged, relatively to the centre of suspension of the tipple. that the full car causes the tipple to turn over, and when the car is empty, the tipple returns by gravity to its original position.

The empty car is then pushed off, and replaced by a loaded car, and the operation is repeated. The movements of the tipple are controlled by a hand brake, not shown on these drawings.

The bottom of the pocket is of concrete, strongly reinforced, with worn rails, to stand the shock of the dumping of the ore. At all places, where the movement of the ore would cause abrasion of the concrete, the surfaces have been lined with rails.

In the bottom of the pocket, places have been provided for six chutes and control gates, but only three chutes have been fitted and have proved sufficient.

These chutes empty the ore from the pocket into a sixteen-ton capacity car, which car carries the ore up to the deckhead on the surface.

It has been found that one of these cars can be loaded to capacity with sixteen tons of ore in less than thirty seconds, and it probably would be done in less time, were it not for the fact that the cars cannot be unloaded as quickly, and the two operations are performed simultaneously, the hoisting being done in balance.

The main improvement in this pocket, over the old one is, that the control gate rises through the stream of ore to shut it off, instead of pushing down into the ore, as is the common method.

GEOLOGIC DISTILLATION OF PETROLEUM.

By Bailey Willis, in "Mining and Metallurgy," the journal of the American Institute of Mining and Metallurgical Engineers January, 1920.

This is an abstract of a paper presented at technical sessions of the Institution's February Meeting. Mr. Willis writes:—

In 1882, Peckham put forward a provisional hypothesis to account for the distillation of petroleum. He did not formally state the hypothesis, but in a discussion of facts drawn from many fields he made it clear that he regarded petroleum, and especially the petroleum of the Pennsylvania fields, as a "fractional distillate produced under high pressure and consequently at a comparatively high temperature."

The object of this paper is to test Peckham's hypothesis and the contributions made to it by White and Johnson by considering the geologic activities of the Appalachian province in the light of present-day knowledge. The presence of oil and gas in the Permian geosyncline is accounted for by the driving force of the excessive gas pressure due to distillation in the folded zones east of that basin. The preponderance of oil in the western part of the oil fields and the very great preponderance of gas in the eastern part follow from the order of distillation in the course of movements which increased gradually in intensity in each fold; first oil and then gas in quantity, in the order of distillation and in progress up the monocline from east to west. The quality of the oil and the large proportion of gas follow from repeated distillation and migration through long distances.

The absence of salt water from the dry sands in the deeper part of the geosyncline does not find any explanation in this general hypothesis. It is, however, a condition which may reasonably be attributed to migration at a later date, the salt water rising along the limbs of the geosyncline as the gas pressures at higher levels diminished through leakage, erosion, and other superficial factors. If so, the original condition of accumulation would not bear upon the present distribution of the salt water. We may conclude, then, that Peckham's hypothesis of geodynamic distillation of petroleum meets the facts in the Appalachian field.

A study of American and European oil fields along the lines of Peckham's theory obliges us to recognize a great diversity of conditions under which petroleum may be distilled and under which it may migrate. Nowhere, so far as the writer knows, is there an exact parallel to Appalachian conditions. This was to be expected, for the petroleums of the Appalachian fields present peculiar characteristics, and the Appalachian folding, though so often cited as typical of a general phenomenon, was almost unique in respect to the character and dynamics of deformation.

A Kameelfontein Diamond Flotation.

The Kameelfontein Diamond Development Syndicate, Ltd., has been registered in London with a nominal capital of £50,000 in 5s. shares. To adopt an agreement with the Transvaal Development Syndicate, Ltd., to acquire and turn to account any diamond or other mines and rights, etc. Minimum cash subscription, seven shares. The subscribers are to appoint the first directors.

— IN STOCK —
1,000 TONS
IRON AND STEEL
Angles, Flats, Rounds, Squares, Plates, etc.
Also COPPER & BRASS
SHEETS, RODS and TUBES.
M. BROWN,
180, MAIN STREET, JOHANNESBURG.
P.O. Box 1826. Tel. Add: "MAUBROWN."
'Phone 3248 and 5770.

FOR QUICK SALE.
About THREE TONS NEW 99 %
CHINESE ANTIMONY.
For further particulars
apply to the Undersigned –
D'ARCY ENGINEERING CO.,
Box 2572,
Johannesburg.

TIN OCCURRENCE OF THE CAPE PENINSULA AND ADJOINING DISTRICTS.

By G. H. Blenkinsop, M.I.M.M.

Prospecting work has disclosed the presence of tin ore or cassiterite over an area extending from Helderberg, between Stellenbosch and Somerset West, through the Kuils River Mills of the Koeberg District. The geological formation of this district may be said to consist of grey granite, which is the base rock and on which lie the Malmesbury beds, consisting of slates, phyllites, quartzites and limestones. These Malmesbury beds can be correlated with the Devonian rocks of the West of England, and therefore the geological formation of this Cape district is similar to that of the Camborne district, Cornwall, which has been the seat of a tin industry for many centuries. The tin occurrences which have been discovered as the result of prospecting are of three types:

1 Small saddle-back reefs in the Malmesbury slates also impregnations in these slates. 2. Veins and impregnations in the granite. 3. Detrital deposits resulting principally from the disintegration of veins and impregnations in the granite. The deposits of the first type are found in the hills of the Koeberg district. They consist of very small saddle-bag reefs so called from their shape. A good deal of prospecting work has been done on these reefs, and some rich tin ore has been extracted. but their extent is so limited that those so far discovered are of no commercial importance. Impregnations in the Malmesbury slates occur on the lower slopes of Devil's Peak, Capetown. The prospecting work done on this occurrence has discovered that the cassiterite occurs as crystals on a series of cracks and as impregnations, but nothing of commercial importance has been discovered. The deposits of the second type occur on the Kuils River Hills and the hills near by. They consist of numerous white quartz veins in the granite having a width up to 12ft. The strike of these veins is approximately north and south. They occur on several farms over a large area, but no prospecting work of importance has been done on these veins except on the farm Hazendal; on this farm testing work has been confined to a quartz lode which outcrops at the apex of the hill. This lode has a width up to five feet. An incline shaft has been sunk on this lode to a depth of about 150 feet vertical; the distance on the incline is 226 feet. From the surface to a vertical depth of 60 feet the lode contains cassiterite (tin ore) associated with a little arsenical pyrites. At the deepest point to which this incline shaft has been sunk the lode throughout its entire width of about three feet contains disseminated copper and iron pyrites. The presence of copper ore in the lode gives this mineral occurrence a striking resemblance to the tin lodes of the district of Camborne, Cornwall, where the principal tin zone was overlain by a copper-bearing zone. It is unfortunate that work has been stopped at this point, for it would be difficult to overrate the importance of this discovery, having regard to its potentialities. It is an indication that these quartz veins probably contain mineral of great commercial value, and as already stated, these quartz veins are numerous and occur on several farms over a large area. Failing the testing of one or more of these veins by private enterprise, it is a work for which a subsidy might reasonably be asked from the Government. The evidence obtained from the prospecting work is favourable to the finding of tin ore in depth in these quartz lodes in payable quantities, and should this prove to be the case, it will add greatly to the prosperity of this portion of the Cape Province, and at the same time to the revenue of the Union. The distribution of cassiterite or tin ore in quartz lodes is not sufficiently even to enable them to be satisfactorily tested by means of boreholes. A shaft should be sunk to a depth of one thousand feet on one or more of these lodes, and levels driven north and south in the lode and cross cuts driven to cut at this depth the other lodes which exist in close proximity. The whole of the testing work indicated above could be carried out for a sum not exceeding £30,000. The detrital deposits of the third type, which have resulted principally from the denudation of the quartz lodes, have been worked to a considerable extent and an appreciable quantity of high-grade concerntrates has been shipped, but no figures are available as to the financial results. At the present high price of tin there should be some points where the yield of cassiterite should be remunerative. Very little wolfram is contained in the concentrates obtained, for this mineral "weathers" much more easily than cassiterite. The extent of those detrital deposits is not sufficient to render them of any great importance.

PERSONAL.

Sir H. Ross Skinner has returned to the Rand.

* * * *

Mr. W. L. Honnold has returned to the Rand after an absence of several years.

* * * *

Mr. Charles E. Rogers, of Fraser & Chalmers (S.A.), Ltd., has returned to the Rand.

* * * *

Mr. E. Davidson, General Manager of the Pretoria Portland Cement Co., Ltd., is leaving on a business trip to America.

* * * *

The following is the personnel of the Advisory Committee on Currency and Banking Reform: The Chamber of Mines represented by Sir Evelyn Wallers; the Banks by Mr. E. C. Reynolds and Mr. J. D. Gibson; the Associated Chambers of Commerce by Mr. A. B. Thomas and Mr. E. Chappell, C.B.E.; the S.A. Federated Chambers of Industries by Senator the Hon. T. A. White; the S.A. Agricultural Union by Col. W. Arnott, C.M.G.; and the Government nominees are Messrs. Samuel Evans, E. Oppenheimer, H. Strakosch, and E. H. Farrer, Secretary for Finance.

ASBESTOS

HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

C. D. LUCAS & B. E. WOLFE
MINING ENGINEERS.
Permanent Buildings,
Phone 4368.
P.O. Boxes 6301 and 537.
Johannesburg.

EXAMINATION RESULTS.

MANAGERS' EXAMINATION held January, 1920.—We obtained no less than NINE passes from ELEVEN Entries. This constitutes a percentage record for this Examination.
SURVEY EXAMINATION held November, 1919.—SIX of a total of SEVEN Passes were obtained by our Students. All other coached men failed to pass.
OVERSEERS' EXAMINATION.—We are AHEAD of all coaches with passes 1918 and 1919.
Write for particulars of our up-to-date Tuition.

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent.

THE WEEK IN THE SHAREMARKET.

Gold Stocks Quiet—Great Activity in Diamonds—Many New Flotations.

The local market has been very quiet during the past few days in so far as the leading gold stocks are concerned. The natives seem to have settled down to work again quietly enough, and the premium on gold is being well maintained. But restrictions on overseas dealings coupled with strikes and threats of strikes in England and France and a disposition on the part of local jobbers to give attention to the more speculative class of undertaking have all tended to make the gold market quiet and dull, and there are few features of interest to be remarked. Anglo-Americans and Rand Selections have maintained a steady level. Elsewhere will be found full particulars of the important amalgamation scheme with which these two companies are concerned. Springs have been weaker at 56s. 6d. on news of the loss of five days' milling through a breakdown of the winding plant at No. 2 shaft. New Modders, Modder Deeps, Modder B.'s, Government Areas and Van Ryn Deeps have all been quietly firm, a remark which indeed applies to practically all Main Reef stocks. In the absence of an active market in gold stocks, local operators on the Stock Exchange have taken a hand in diamond gambles and the movements in some stocks of this description have been, to say the least of it, sensational. Greig Diamonds have been in the advance and have had a most eventful week. The five-shilling shares of this syndicate, after rising to four guineas, began to sag on Thursday morning, and after declining through the seventies dropped to 35s. and recovered to 57s. 6d. with astonishing rapidity. It is now known that Mr. A. C. Hughes, of South-West Diamond fame, is identified with this concern, and the recent escapades of Greigs have been no less sensational than the rapid rise and equally rapid fall of South-Wests. Postmas Diamonds have also had a good advance although they have not been able to keep pace with Greigs in sensationalism. These shares have a nominal value of 7s. 6d. and, at the moment of writing, are quoted at 15s. 3d. Stienies have found plenty of support around 11s., and Victorys at 3s. 6d. up to 4s. and slightly over. Percys have been dealt in at 4s. 6d. and Makganyenes, new and old, have been active. Amongst the very latest of the new diamond concerns are Basuto Diamonds and Astoria Diamonds. Notices of these concerns appear elsewhere in this issue. Basutos, which are understood to have been dealt in privately at 9s., have a nominal value of 2s. 6d.; and Astorias, which have been bought at 21s. 6d., 22s. and up to 24s., are nominally of a value of 10s. Oils have firmed up somewhat on news of a good report consequent on satisfactory diamond drilling results. An informative article on the value and prospects of African Oils appears in another portion of this issue. African Oil Corporation shares, after weakening to 9s. 6d., have advanced to 17s., and Geluks are quoted at about 8s. Tin stocks have been much more active. The price of the metal has been fluctuating between £400 and £420 per ton, and at this exceptionally high quotation local tin shares look very attractive. Leeuwpoorts have advanced to 34s. 6d., and Rooibergs, after touching 13s. 3d., relapsed to 11s. 9d., subsequently improving to 12s. 3d. It is calculated that this company will be able to earn large profits from its accumulated ore for the next few months. Transvaal Silver and Base Metals have been very active and finished up on Thursday night a strong market, the shares being purchased at 57s. and the options have been dealt in at 36s.

	Fri. 27th.	Sat. 28th.	Mon. 1st.	Tues. 2nd.	Wed. 3rd	Thurs. 4th.
Anglo Amer. Corp. .	53 0	53 6	53 0	51 9*	53 0	51 6*
Apex Mines	6 10*	6 9*	6 9*	6 10*	7 0*	7 0*
Aurora Wests	6 0*	6 0*	6 0*	6 6*	6 0*	—
Bantjes Cons.	4 2*	4 1*	4 3*	4 1	4 0*	4 1*
Brakpan Mines	72 0*	72 0*	72 0*	72 0*	72 0*	72 0*
Breyten Collieries . .		8 0	—	8 0*	—	8 0*
Bushveld Tins . . .	—	2 0*	2 0	2 0*	1 11*	1 11
Cinderella Cons. . . .	6 6*	—	6 6	6 6*	—	6 6*
City and Subs. . . .	7 3	7 3	7 3	7 0*	7 0*	7 0
City Deeps	67 0†	—	63 6*	63 6*	62 0*	65 6
Con. Langlaagtes .	25 0†	25 0*		24 6*	25 6†	25 6†
Con. Main Reefs . .	16 0*	15 9a	16 3	15 9*	16 3	15 9*
Con. Mines Selections	32 0*	32 0*	32 0*	32 0a	33 0†	31 0
Coronation Colls. . .	70 0†	70 0†	—	70 0†	—	—
Coronation Freeholds.	2 2*	2 2*	2 2	2 2*	2 2*	2 2
Coronation Syndicates	16 6	16 0*	16 0*	16 0*	16 0*	16 0*
Crown Diamonds . . .	14 9	14 3	13 0	13 3	13 3	12 9
Crown Mines	78 0*	78 6*	79 0*	80 0*	80 6	80 0*
Daggafontein Mines .	19 6*	20 0	19 6*	19 6*	19 3	19 3†
Durban Rood. Deeps.	10 0†	10 0†	10 0†	—	7 6*	—
East Rand Coals . . .	—	2 3	2 6†	2 6†	2 3*	2 3*
East Rand Deeps . .	1 2*	1 3†	1 2*	1 2*	1 2*	1 2*
East Rand Props . .	14 0*	14 3	13 9	14 3	14 0	13 3a
East Rand Debs. . .	£63*	£68*	—	£70*	£70*	£70*
Eastern Golds	—	1 6*	—	1 6	1 4*	1 4
Ferreira Deeps . . .	12 6†	12 6†	—	—	12 6†	12 6†
Frank Smith Dmds. .	9 9	9 7	11 4	11 2	10 3	9 9
Geduld Props.	55 6	55 6	55 0*	56 0	55 0*	55 0*
Glencoe Collieries . .	—	6 0†	6 0†	—	5 0*	5 0*
Glynn's Lydenburgs .	—	16 3*	18 0†	—	18 6†	18 0†
Government Areas . .	97 6	97 6	97 3	97 6	96 6*	98 0†
Hume Pipes	23 0	22 0*	22 0*	22 0*	22 0*	22 9*
Jhb. Br. of Ex. . . .	—	35 0*	35 0*	—	35 0*	—
Jupiters	6 3*	6 3†	6 0*	6 0*	6 0*	6 2*
Klerksdorp Props. . .	—	2 0*	2 0*	2 0*	—	—
Kolmanskop Dmds. .	35 0*	35 0*	—	—	—	—
Knight Centrals . . .	7 1	7 3	7 3	7 3*	7 1	7 1
Lace Props.	16 0	—	—	—	15 3*	15 6*
Leeuwpoort Tins . . .	29 9*	29 6	30 0	30 9*	34 3	34 0
Lydenburg Farms . .	7 7*	7 7*	7 9*	7 9*	7 9*	7 9*
Middelvlei Estates . .	—	2 2†	2 3†	2 3†	2 3†	—
Modded B.'s	149 0*	149 0*	150 0*	150 6*	150 6*	151 0
Modder Deeps	54 6	54 9	54 9	54 3	54 9	54 9
Modder Easts	27 9	27 6*	27 6*	28 0	27 9	27 9
Do. Options (3 yrs.)	7 3	7 4	7 3	7 5	7 3*	7 3
Do. Options (4 yrs.)	11 9	11 9	11 3	11 9	11 9	11 6*
Natal Navig. Colls. .	—	—	—	—	24 0*	24 0*
National Banks . . .	290 0*	290 0†	290 0†	290 0†	290 0†	290 0†
New Boksburgs . . .	—	2 0*	—	2 0*	2 1*	2 1*
New Eland Diamonds	87 6	86 0a	85 0	85 0†	—	85 0†
New Era Cons. . . .	10 4*	10 6*	10 6*	10 6*	10 6*	10 6*
New Geduld Deeps .	2 3*	2 3*	2 3*	2 0*	2 3	2 3*
New Kleinfonteins . .	14 9	14 9	14 6*	14 6*	14 3*	13 9*
New Modderfonteins .	84 0	84 0	83 3	83 0	84 0	84 3
Nigels	9 6*	—	9 6*	9 6*	9 6*	—
Nourse Mines	—	14 0*	14 6*	14 6*	14 6*	—
New States	30 0a	—	30 0*	31 6†	30 0a	31 0†
Pretoria Cements . .	100 6a	99 0*	99 6*	99 6	99 0	98 9*
Princess Estates . . .	2 3*	2 3*	2 3*	2 3*	2 6*	2 6*
Rand Nucleus	2 3†	2 1	2 0*	2 0*	2 0*	—
Rand Select. Corp. .	105 0	106 0	106 0	105 0	104 6	105 0
Randfontein Deeps . .	6 6*	7 0	7 3	6 9*	7 0	7 0
Randfontein Estates .	26 0*	26 6	26 6*	26 3*	26 0*	26 0*
Roberts Victors . . .	18 0	17 9*	17 0*	17 0*	18 6	17 9*
Rooibergs	10 9	10 0*	10 3	11 9	12 3	12 0
Roodepoort Uniteds .	6 0†	6 0†	6 0†	—	6 0*	6 0†
Ronxville	25 0	24 9	24 9*	25 0	24 9	24 7½
Shebas	2 6*	—	2 8*	2 9*	3 0*	2 10*
Simmer Deeps	3 6*	3 6*	3 6*	3 6	3 6*	3 6*
S.A. Lands	6 3	6 3	6 2*	6 1*	6 0*	6 2*
Springs Mines	57 3	57 0	57 0*	57 0*	56 6	56 6
Sub Nigels	17 6	17 9	17 6*	18 0	17 9	17 9*
Swaziland Tins	14 6	15 0*	15 0*	15 0*	16 0*	17 0
South Van Ryns . .	9 0	9 0*	9 6	9 3	9 3	9 0
S.A. Townships	15 6	15 0*	15 0*	13 0*	15 6	15 0*
S.A. Alkali	22 0	21 0*	21 6	21 3*	21 6*	21 0
Transvaal Silver . . .	55 0	53 0a	50 6	54 0	55 0a	55 6
Do. Options	34 0	33 6a	30 0	35 0	35 6a	37 9
Tweefontein Colls. . .	25 0†	25 0†	—	25 0†	—	25 0†
Trans. G.M. Estates .	18 0†	16 6*	16 6*	16 6*	—	16 6
Union 5 per cent.	£102	£102½	£103	£103†	£102½	£102½
Van Ryn Deeps. . .	100 6*	100 6	100 6	101 0*	101 0	100 9
Victory Monarch .	60 0	60 0*	60 0*	60 0*	—	60 0
Village Deeps . . .	15 6*	16 6	15 6*	16 0*	16 0*	16 6
Village Main Reefs .	8 0a	10 0†	10 0†	10 0†	—	—
Van Dyks	3 0*	3 9†	4 0	4 0	4 0*	4 0*
West Rand Cons. . .	8 0†	8 0†	8 0†	8 0†	8 0†	8 0†
Western Rand Estates	7 6	7 3	7 3	7 0*	7 3*	7 3*
Wit. Deeps	12 6	12 9	13 0*	13 0*	13 6†	12 6*
Wolhuters	6 3	6 1*	6 3	6 3	6 3	6 6
West Springs	22 6	22 6*	23 0a	22 6	21 0	21 6
Do. Options	6 6	—	6 6	6 0*	—	5 9
Zaaiplaats Tins	11 9*	12 6	12 3	12 3	12 3	12 3*

*Buyers. †Sellers. aEx London. nOdd lots.

Company Head Offices.

Mr. H. J. Hofmeyr, the well-known Johannesburg solicitor, has taken up the question of the transference of the head offices of companies from the United Kingdom to South Africa. He states that there are various limited liability companies carrying on business in the Transvaal, and with all their assets in this Province, but they are registered in and managed from England. It is felt that for a number of important reasons it would be to the great benefit of these companies if they could be converted into distinctly South African companies. In order, however, to do this, the English companies, as the law now stands, must be liquidated, and the new companies formed and incorporated in South Africa; and all the assets of the old companies must be transferred into the name of the new company. All of this involves the payment of liquidation and legal charges, transfer, share capital and stamp dues. This process is so costly as to be prohibitive, and South Africa, therefore, loses the many advantages of having the head office of flourishing undertakings established in this country; while the companies in question are compelled to maintain unnecessarily complicated administrative machinery, and to pay heavy taxation which they might reasonably escape if domiciled in the Union. It is suggested that a remedy might be found by amending the law so that any English company incorporated as a new company in South Africa should be exempt from the payment of transfer, share capital and stamp dues, provided the objects and the shareholders in both companies remain the same. Mr. Hofmeyr has circularised several public bodies on the subject, and it remains to be seen what support he will receive.

John Tullis & Son, Ltd.
16-18 COMMERCIAL EXCHANGE BUILDINGS, JOHANNESBURG.
P.O. Box 3524.
Phone 5903.
Telegrams: "CHONATA."
WORLD FAMOUS TULLIS BELTING

HEAD, WRIGHTSON & CO. Ltd., England.

Makers of
BRIDGES AND STRUCTURAL STEELWORK.
CASTINGS: IRON and STEEL.
COLLIERY & MINING PLANT.
BLAST FURNACE PLANT.
COKE OVEN PLANT.
STEELWORKS PLANT.
GAS WORKS PLANT.
RAILWAY WAGONS
DROP FORGINGS, Etc., Etc.

Contractors to :—
ADMIRALTY,
H.M. OFFICE OF WORKS,
WAR OFFICE,
INDIA OFFICE,
BRITISH AND FOREIGN RAILWAYS,
CROWN AGENTS FOR THE COLONIES,
ETC,. ETC.

WORKS:—Teesdale Iron Works,
THORNABY-ON-TEES.
Stockton Forge,
STOCKTON-ON-TEES.
Egglescliffe Foundry,
STOCKTON-ON-TEES.

Foundry Capacity
2,000 Tons per week.

Specialities:—
"NISSEN" STAMPS.
TUBE MILLS.
"MARCUS" SCREEN CONVEYORS.
COAL WASHERS.
HEADGEARS, BINS, Etc.

South African Office:
HEAD, WRIGHTSON & CO. (SOUTH AFRICA), LTD.
47-48, Standard Bank Chambers, JOHANNESBURG.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Business Restricted Through Cautious Feeling—Financiers Busy on the Oversea Exchanges—Timber and Building Materials—Electrical Goods—Iron, Steel and Hardware—Oils and Colours—Trend of Affairs.

Business is not too good, as a somewhat nervous and cautious feeling prevails, and now there is the Engineers' and Founders' strike, which is not at all reassuring. Another thing is, we are on the eve of elections, this being the last issue before that momentous event. Therefore merchants are buying from hand to mouth from their neighbours, so as to avoid any big commitments for the present, and much is hoped for after the elections. It may be advisable to remark that nervousness is not reflected in the financial aspect of business, as the banks are running very much the same, with here and there a few silken threads of control. The hopeful feature is that the financiers of the world are concentrating their thoughts and energies on the question of levelling up the Exchanges to something resembling pre-War rates. Undoubtedly with all this talent something substantial should result in their efforts.

TIMBER AND BUILDING MATERIAL.

The complaint uppermost by the timber and hardware builders is that more business could be done if they had more stocks. For example, all joinery, such as windows, doors, casements, etc., are very scarce indeed. Doors are mostly imported, but with the timber cargoes arriving they are not coming forward so freely as in pre-War days. Windows and other joinery are made in South African shops, but they cannot turn them out quickly enough to keep up with the demand. In the first place all wood-turning machinery is scarce. Solid deals, which are the basis of the raw material, are difficult to obtain in quantities. There are fair quantities of floorings and ceilings. Deals, 1s. 10d. to 2s.; floorings, 9¾d. to 10d.; ceilings, 6¾d. to 7d.; roofing iron, 24 gauge, 1s. 6½d. to 1s. 8½d., which is slightly higher than last week, and it is expected to go dearer in consequence of the home cost being higher. There are still fair stocks of builders' hardware, but week after week many lines become exhausted, and therefore substitutes have to be arranged, often creating a lot of bother as between the builders and architects. These matters are usually amicably arranged as a rule, as the true position of affairs is recognised by all parties. Enamel ware for sanitary baths is fairly plentiful, but always on the up grade as regards prices, as every shipment coming in is of more value. Business is not too good in the second-hand yards; deals are 1s. 6d., and iron 1s. 4d. per foot, but both are very scarce indeed. Stocks are filtering in slowly, but the demand is such that incoming lots are disposed of at once, therefore reserve stocks are out of the question. One dealer has a consignment of second-hand materials coming per rail, but on account of the ever-present shortage of trucks the delay is putting him to considerable inconvenience.

ELECTRICAL GOODS.

In the electrical material market, while lamps are about the same as last reported, ceiling roses and adaptors are absolutely out of stock in town. Wiring and tubing are much about the same, but also getting scarcer, and it is expected that by the end of the present month the present stocks will be absorbed. Naturally on account of the general scarcity the tendency all round is for electrical materials to rise, because people finishing jobs do not mind much what they pay to complete contracts under way. Nevertheless certain stocks are still coming in slowly, but still not in sufficient quantities to meet the demand, hence the firming up tendency and the inability to build up reserves. Country and town business under the circumstances is very fair and is only limited by the absence of stocks.

IRON AND STEEL HARDWARE.

The Transvaal bar iron and steel trade still continues excellent, no doubt very much assisted by the rise of the imported. Good consignments have been sent to the coast ports, particularly angles and flats to Capetown and Woodstock. The flats for Johannesburg are £30, and angles £36½ to £38½ per ton. The Engineers' strike may restrict orders for Johannesburg proper, but up till last Saturday business with the foundries and shops was quite good. There has been a big rise in iron bars and angles in Britain, of £4½ per ton. Imported mild steel is also up 5 per cent. per 100lbs., being quoted here at 36s. to 38s. 6d. Tool steel 1s. 3d. per lb., drill 7½d., hollow 10d., shafting 7½d. to 8½d. per lb. Brass rods and plates about 2s. 6d. lb. and tubing 3s. A few orders have been despatched to Durban of tram trucks and rails, for the sugar plantations, and in a lesser degree for new industrial undertakings. There is always a demand for machinery, particularly steam boilers and engines, from all parts of the Union. However, very few orders are fulfilled, as the Johannesburg yards are bared of anything like decent machinery. American shovels are 67s. 6d., and English 75s. per dozen, picks 72s. 6d. per dozen.

SECOND-HAND MATERIAL.

There is a big demand for tram materials and trucks also spares and oddments of battery and machinery requirements. One dealer who was leaving for overseas, had no difficulty in clearing his stock when it became known that it was a genuine case of selling. A demand has sprung up for 3 to 6 inch valves for irrigation works which has been fairly well met, also second-hand piping has been under requisition. The prices roughly are: 1 in., 7d.; 1¼ in., 10d.; 1½ in., 1s.; 2in., 1s. 3d.; 3 in., 2s. 3d. to 2s. 6d.; 4 in., 3s. to 3s. 6d.; 6 in., 6s. per foot. Saleable goods are vices, anvils, valves, piping, lathes, drilling machines and other shop requirements. A lot of drill steel has recently come into the market, ⅞ in. to 1½ in. octagon, and also a lot of 1½ in. to 2 in. cruciform steel. The dealers are making big inquiries from one to the other for special lines to make up orders simply because of the difficulty in obtaining material, as most of the derelict mines have been pretty well cleared out.

OILS AND COLOURS.

The outstanding feature is the price of turps, and owing to its scarcity in Johannesburg it is difficult to get a solid quotation. However, 150s. is quoted for 2-4's and 165s. for 10-1's. As things go this is cheap, because the quotation for landing at the Cape is about 10s. higher. One of the leading dealers says that if we only start getting goods from Russia we need not look to America so much, as Russia can supply turps, linseed oil, etc. If this should happen it stands to reason that Americans will not sit on their stocks for such extraordinary values, which as a matter of course is assisted by the ruinous state of exchange in that country. This advance has been foreshadowed for turps for a long time now, as America has control of the market, and evidently they are making the best use of their opportunity. Linseed oil is 150s. raw and 125 boiled for 2-4's. White lead, 100s. to 105s. per 100 lbs., and 1s. to 1s. 3d. per lb. for small lots. Resin is 9d. a lb.; tallow (Australian), 1s. 3d. a lb. There is no quotation for South African, because most of it has been contracted for to the soap factories. Lubricating oil is from 42s. to 46s. for 2-4's. Business is good, but may be a little quieter for jobbing work owing to the strikes causing owners to keep back their orders.

'Phone 4673. Box 3162.

FORGED STEEL

SHOES AND DIES

MANUFACTURED BY

The Old Park Forge, Ltd.,

SHEFFIELD.

Sole Agents:

SAMUEL OSBORN (South Africa) Ltd., SHEFFIELD and JOHANNESBURG.

THE TREND OF AFFAIRS.

Business has been quiet on the Commercial Exchange, and not much is expected for the present month or in any case until the result of the elections is known. A Reuter's cable states that the Exchange in London is hardening, and in this respect the conference on the subject in Pretoria is expected to give South Africa relief. Gold seems pretty steady at £6 2s. 0d. an oz., and there is an idea that this is about top, seeing that all the wise financial people have set to work to provide remedies. Again the British Government has released a stock of civilian suits at £3 3s., and an enterprising M.P. is providing many at £2 2s. Naturally they cannot provide suits for everybody; figures like this will have much to do in preventing clothing going very much higher. The Municipal butter market is exceedingly well supplied, with 2½ tons daily offering, and the price of the medium quality is from 2s. 1d. to 2s. 2d. per lb., which is a proof that the rains are having the desired effect. White mealies on Wednesday were done at 29s. 6d. Yellow, 29s. to 31s., and 30s. for medium, but there is only a poor demand for parcels on rail. These facts are mentioned more particularly to illustrate the fact that we have begun to dip down a little from the highest levels as regards the costs of living. There is one fact one must not forget to mention, that Capetown has made the loaf cheaper by putting in an extra ounce in the weight. So far we cannot thank the electioneering for doing much towards the decrease in the cost of living, but we can say that one feels when interviewing various merchants that speculation in foodstuffs, oil, and second-hand mining materials has almost been eliminated for the time being. A Durban merchant on a visit to Johannesburg states that an order for 50,000 tons of coal has been placed in Durban from Marseilles, and the *Ville de Paris* sailed from Durban with the first consignment, and also a contract has been taken to send coal to Rotterdam.

Some weeks ago a cable announcement appeared in the papers stating that Dr. Arnold of Sheffield had brought out a new high-speed tool steel which was reported to be far superior to any at present in use. A fair summing up of the extraordinary claims for Dr. Arnold's steel appeared in *The Engineer* of the 2nd January, and we reproduce the article in full:—

"Engineering might not increase in accuracy, but it would certainly augment in excitement if the handling of it were entrusted to the *London Daily Mail*. A couple of weeks ago that ingenious paper published a wild story about the invention of a new tool steel by Dr. Arnold and its immediate suppression by the Government. It is not likely that the steel trade of Sheffield was much disturbed by the announcement, though it may have derived a good deal of amusement from it. Dr. Arnold's steel is not new. His scientific interest in molybdenum is well known, and it was no secret to many people that he had experimented with and patented during the War a tool steel in which 6 per cent. of molybdenum replaces the 15 to 18 per cent. of tungsten generally employed. The Controller, of course, prevented publication of the patent, as he did of all others that might have conveyed useful intelligence to the enemy, and there is not a particle of reason, so far, for supposing that the interests of tungsten were especially considered. As prices stand at the present time, molybdenum tool steel has little, if any, advantage over tungsten steel, for molybdenum costs three times as much as tungsten; but it appears to have mechanical and physical properties of a rather higher order, and it may in the course of time win an important position on the market. But we must confess that whilst scientifically it is extremely interesting, we can see but little reason to suppose that the manufacturers of the standard types of high-speed steels will be much disturbed by the release of Dr. Arnold's patent."

Messrs. Edgar Allen & Co., Sheffield, are in a position to supply this high speed steel with molybdenum substituted for tungsten, but from their experience of it, it would be in no way superior to their well-known "Stag" Special High Speed Steel. It would be interesting to know if any large deposits of molybdenum have been discovered recently, and if so, who is developing them.

Zaaiplaats Tin.

The directors of the Zaaiplaats Tin Mining Co. report that the mill ran 14.1 days during the quarter, chushing 1,324 short tons, the duty per stamp being 6.1 tons per 24 hours. The concentrating plant ran 73 days, the accumulated product treated being 1,627 tons. The output for the quarter amounted to 50 long tons of concentrates, assaying 69.6 per cent. metallic tin. The results of working show an estimated profit for the quarter of £658 1s. 7d. before providing for directors' fees and Government taxes. 40.5 long tons of refined tin, assaying 99.3 per cent. metallic tin, were produced by the smelter.

More favourable developments took place in No. 13 during the quarter under review. The main face has become much stronger and values show a considerable improvement. Two off-shoots of No. 13 show promise of becoming of value. An important new body of ore was discovered by exploration in No. 6 cross-cut pipe. The new body carries rich ore in a seam bordering a very large body of pipe matter. Since discovery the ore has been consistent in character and the face has steadily expanded to 60 feet in length. The new discovery strikes parallel to No. 13 and resembles in character that noted ore body. The discovery having been made at an incline depth of approximately 2,500 feet from the surface, a large reserve of ore seems reasonably assured.

IRON
AND
STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in
BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.
Also
ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:
ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P. O. Box 4047. Telegrams: "THAINE."

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

Established 1891. Established 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

Vol. XXIX., Part 11.] March 13, 1920. [No. 1485.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

Agents for Great Britain and America: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

Annual Subscription Rates: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 21

Topics of the Week:

The Elections and the Economic Outlook 23

The Diamond Boomlet 25

The Wolhuter's Improved Outlook 27

The February Outputs and Profits Renewed 29

Ore Treatment at the Connemara Mine 32

The Need of a Mines Trial Committee 33

The February Output in Detail 35

The February Output: Group Returns 36

The Report of the Nitrogen Products Committee ... 39

The Week in the Sharemarket 41

Trade and Industries Section:

The week in the Mining Material and Engineering Trades 43

Notes and News.

A Holman Hammer Drill Record.

We understand that a record fathomage has been broken by the Holman cradle hammer drill at the Geduld. Three machines in 26 shifts broke 176 fathoms, which works out at 2·256 fathoms per machine shift. This drill is made by Messrs. Holman Bros., Ltd., of Camborne, England, and the result reflects the greatest credit to all concerned.

* * * *

Geduld and Modder Deep Ore Reserves.

The following particulars of the developed ore reserves of the Geduld and Modder Deep, as measured and valued at the 31st December, 1919, are officially supplied: Geduld Proprietary Mines, Ltd.: 2,580,000 tons of an average assay value of 7·4 dwts. over an estimated stoping width of 61 inches. The corresponding figures at 31st December, 1918, were 2,510,000 tons, 7·5 dwts., 61 inches. Modder Deep Levels, Ltd.: 3,775,000 tons of an average assay value of 9·1 dwts. over an estimated stoping width of 77 inches. The corresponding figures at 31st December, 1918, were 3,450,000 tons, 8·8 dwts., 78 inches. The ore reserves have been calculated on the same basis as that formerly adopted, no allowance having been made for the effect of the premium now being obtained on gold.

* * * *

Latest from the "T.C.L."

The latest quarterly report of the "T.C.L." states that at the Groenfontein tin mine 2,031 tons of ore were treated, producing 85·12 short tons of 72 per cent. concentrate. 8·96 short tons of 73 per cent. alluvial concentrate were also produced. The operations for the twelve months ended 31st December, 1919, showed a profit of £18,163. The main tin faces continued to carry average exposures of ore throughout the quarter. At Mutue Fides tin mine milling operations were recommenced on 1st December, 1919, producing 7·84 short tons of 73·8 per cent. concentrate. The operations for the twelve months ended 31st December, 1919, resulted in a profit of £3,135. The power plant was reorganised during the quarter and an 80 h.p. gas engine has been installed. The plant is working satisfactorily. Regarding the tributes, it is reported:—Penge No. 780, district Lydenburg: The royalty for the quarter amounted to £987 7s. Mount Morgan mine: The royalty received for the quarter amounted to £121 14s. 9d. Blane-Witkop Zinc mine: No revenue has yet resulted from this tribute. Montrose claims: The royalty received for the quarter amounted to £100. Rietfontein No. 1228, District Lydenburg: The royalty for the quarter amounted to £300.

* * * *

Anglo-Portuguese Concessions.

Mr. A. Goldberg, formerly well known in Johannesburg, has successfully floated his Mozambique concessions. From the London papers we note that particulars are issued, in accordance with Stock Exchange requirements, of Anglo-Portuguese (East Africa) Concessions, Ltd., which has acquired from the Portuguese Government the sole and exclusive right to prospect for minerals and precious stones over 3,500 square miles in Mozambique (Portuguese East Africa). The concession is bounded on the north by the Komati Poort-Delagoa Bay Railway, and on the south by British Amatongaland. It is well watered by three main river systems, and is served by two railway systems, the Transvaal main railway and the local Swaziland railway. The purchase consideration for the Concession, with the benefit of twenty million reis deposited as security at Lisbon, was £40,000, which was satisfied by the allotment of one hundred 6 per cent. debentures of £100 each (subsequently redeemed) and 120,000 fully paid 5s. shares of the company. The issued capital is 300,000 shares of 5s. each, of which 120,000 were issued as above mentioned; 36,753 were issued as fully paid in consideration of services rendered, and 143,247 were issued at par for cash. Favourable reports have been received from Messrs. Sydney T. Ryan, W. Laurie Hamilton, P. A. Ogilvie and Leslie Martyn as to the potentialities of this concession with regard to coal, copper, tin, oil, gold, diamonds, and other precious stones.

Postmas Diamonds.

Encouraging reports continue to come from the Postmas property. A wire to head office received from the mine states that a magnificent and flawless 4½ carat stone was found by a native boy in the No. 2 adit workings. The diamond is described as a perfect octahedron, and if of anything like the quality of the stones already recovered from the property, it should prove a valuable find indeed.

* * * *

The Crown Diamonds.

The result of February washing operations is as follows: No. of loads washed, 6,513; carats of diamonds recovered, 763; yield per 100 loads 11.71. Working was seriously interfered with owing to the frequent heavy rains which occurred. These not only reduced the quantity of ground treated but also confined washing operations to coarser ground. The recoveries include 215 carats won from second sortings, which were treated during the period when normal working was hindered by the unfavourable weather conditions. The value of the diamonds has not yet been ascertained.

* * * *

Honouring a British Pioneer.

At a symposium held in London, England, by the Faraday Society, the Royal Microscopical Society, the Optical Society, and the Photomicrographic Society on the design and uses of the microscope, fitting tribute was paid to the magnificent pioneer work of the late Dr. Sorby, of Sheffield. It was Sorby who first hit upon the notion of studying the structure of rocks by cutting thin slices and examining them under the microscope. In the face of ridicule he continued his experiments until he founded the science of microscopic petrography. When he turned his attention to the structure of meteorites, he found it impracticable to obtain thin sections and accordingly he developed the plan of etching a polished surface with acid and examining it microscopically under reflected light. Thus he gave birth to the microscopic study of iron, steel and other metals—a study which has been of incalculable benefit to industry. One remarkable fact about this British genius is that he did all his work in a private room in his house, with only the simplest materials. As Sir Robert Hadfield remarked at the symposium, "from the humblest of beginnings this method of research has grown into a giant."

* * * *

Trixie, Ltd.

This is one of the latest local flotations and the shares have been quoted on the local market during the past week at 9s.

The Company has been formed in Johannesburg, and registered in Rhodesia, with a capital of £7,500. Vendors £3,000 in Shares; Working Capital, £3,000, which has been all subscribed, and a Reserve Capital of £1,500. The nominal value of the shares is 5s., and the directors are: Messrs. J. R. Armstrong-Kelly (chairman), T. C. Alison, F. C. W. Ingle, E. Rice. The prospectus states, *inter alia*, that the Rhodesian property consists of 50 claims, each 150 ft. by 600 ft., all contiguous, situated in the Umsweswi District, Hartley, Southern Rhodesia. There are a number of producing mines in the vicinity, viz., Cam and Motor, Owl, Owl Extension, and Tryme, etc., etc. Two shafts have been sunk on the property to the first level, 100 ft., and are now being connected up by drives. The latest assays show 14.7 dwts. over 29 inches. Samples going as high as 8½ ounces, have been obtained in Number 2 shaft. The ore is free milling quartz, 73 per cent. extractable by amalgamation, there being no trace of refractory elements such as antimony or arsenic in this or neighbouring mines. The development is being pushed on, and it is the intention of the Board to start erecting the plant at an early date. The Company has also bought the mining rights for ten years on the farm at Cypherbuit, Transvaal. This property was worked in 1895. About £40,000 gold was taken out, mostly by sluicing. In those days it was not thought a payable proposition to erect a battery, and crush the reefs which had shed the alluvial. Practically the whole farm is covered with a three-foot deposit of rich gold-bearing rubble.

* * * *

Stock Exchange and Currency Reform.

From correspondence published last week it is shown that the Johannesburg Stock Exchange was asking for representation on the Advisory Committee on currency and banking reform. The Secretary for Finance replied regretting that "owing to the already large proportions of the proposed Advisory Committee on currency and banking reform the Government is not disposed to invite any additional representatives to attend the Committee." Upon this the Chairman of the Exchange wrote to the Secretary for Finance: "My Committee regrets the Government's decision, seeing that this institution is practically the sole medium in South Africa for the investment of money in Government loans and shares of public companies, and as we claim to represent the interests of investors in this country. In addition, this institution is the medium of very large business in securities with other countries, and any alteration in policy in regard to currency or the present basis of exchange would be of vital importance to the interests of those whom we claim to represent. My Committee is therefore surprised that our claim to representation should have been overlooked in the first instance, when the personnel of the Advisory Committee was decided upon, and we would again strongly urge upon the Government that it should reconsider its decision and appoint a representative of this institution." To this the following reply was given: "I am to state that it is considered that the interests which your Committee claims to represent will be adequately safeguarded by the Government nominees to the Advisory Committee and representatives thereon of the banks." The secretary of the Exchange wrote on February 20: "My Committee are of opinion that the claims of this institution can scarcely be adequately safeguarded by representatives of the banks in view of the fact that the Johannesburg Stock Exchange is the medium for the import and export of securities, and therefore our interests are in direct conflict with those of the banks, as witnessed by the recent imposition of prohibitive discount rates and the refusal to do business even at these rates."

* * * *

Greenlands Gold and Silver Mines, Ltd.

Amongst the new mining prospectuses is that of "The Greenlands Gold and Silver Mines, Ltd.," with a capital of £40,000 allotted as follows: For subscription, 20,000 fully paid up shares of £1 each; to vendor, 20,000 shares of £1 each. The objects of the syndicate are set forth as follows:

> "To secure the option from the Vendor of the Farm Blaauwboschpoort, No. 30, District Vredefort, O.F.S., in extent 500 morgen, on the following conditions:—£300 the first year, £350 the second year; option of purchase price of mineral £4,000.
>
> "This option gives the Company the right to mine, win, or sell all precious and base metals."

This property is situated 85 miles south of Johannesburg and is 20 minutes' drive by cart from Greenlands Railway Station, in the O.F.S. Samples of the dump taken there is at least 300 tons, gave an assay of 5 dwts. gold and 19 dwts. of silver. The prospectus continues with "Copy of J. Robertson's Report, 1889 (C. and M. Engineer)," which states, *inter alia:*

> "These deposits may be taken to represent quartzose-shales, with a considerable body of talcose clay highly furrugineous, and vary in thickness from 8 inches to 4 feet. In some instances the talcose clay is seen underlying the quartzose-shale, and in others the latter is embedded in the former. As at present discovered there are various lodes on the Eastern portion of the farm, and on the Western portion several lodes, probably their extension. The lodes at G.H. have been opened up to a considerable extent, and appear to form a true bed conformable to the strata adjoining. The strata cannot be traced throughout the lines G., H., but it is the probable line, judging from the strike of the formation observable on the East and West, on which extremities the structure is identical. This again is confirm with the contour of the country, with which the strata, to some extent, conforms as a general rule."

What all this means we cannot say. Mr. Robertson concludes his report as follows: "Argentiferous: One of the lodes assayed 20 ozs. 3 dwts. 18 grs. of silver to the ton and 5 dwts. 13 grs. of gold to the ton. The present appreciation of gold and silver makes your property a very valuable one." It is not clear whether the figures 1889 refer to *anno domini*, a box number, or a telephone. But if the year 1889 is the date of the report the last statement of Mr. Robertson's is a most decided anachronism.

TOPICS OF THE WEEK.

THE ELECTIONS AND THE ECONOMIC OUTLOOK.

Though the final results of the elections are not known at the time of our going to press, most people are asking how the economic future of the country is going to be affected. Labour in the urban constituencies has had a signal triumph, though not entirely unexpected by those who knew what easy capital was being made out of the profiteering cry against the S.A.P. and Unionist parties. The almost clean sweep made of the latter on the Rand and in the Natal towns is the price they pay for their loyal support of the Government during the recent critical times; and both Government and Unionists must now realize that even the appearance of leniency towards the profiteers has cost them dear. As a result Parliament will be the poorer by the loss of many strong and able members whose voice and vote have always been at the service of the best interests of the country. In their place, we have a great accession of strength to the Labour Party, and—though this is not quite clear at the time of writing—a notable augmentation of the ranks of Nationalism. Industry—including in the term the mines and the ever-growing number of industries springing up in dependence upon them—certainly cannot afford to regard the position with equanimity, and it is plain that it will be more necessary than ever in future to lose no opportunity of educating our rulers up to a proper understanding and appreciation of the fundamentals of our economic existence. It is true that in one or two glaring cases, notably in regard to the last Phthisis Act, which, by a stroke of the pen, raised the financial burden of that impost on the mines from £1,300,000 to £5,100,000, the out-going Rand members showed no great concern for the solvency of the industry, and that they did little or nothing to save the low-grade mines from extinction. The case for the latter had to be fought out by the spokesmen of the industry from outside Parliament, and to the gold premium rather than to any efforts of Parliament, the Rand to-day owes its prosperity. When all is said, therefore, there seems a general disposition to give the Labour people an opportunity to show what they can do. One or two cardinal facts it is hoped they comprehend. First, the present field of employment on the Rand, with its concomitant of national prosperity is conditioned by the maintenance of the gold premium. The big recent increase in white wages was only rendered possible, as was every other item of increased expenditure, by that premium; and no one knows how long and at how much that premium may remain. To put it briefly and bluntly, those whom organised Labour professes to represent are the very people who are bound to be hit first and hardest should anything happen to the present position of unstable equilibrium in the gold mining industry. It must be that we shall have to return to this subject again, and that our new Pariament must have the facts put to it clearly and unequivocably. The foot notes attached to the February output details in this issue provide an eloquent and opportune reminder. Wages are up, bank charges are up, cost of stores is increasing, and the gold premium has had a material set-back. One shudders to think of the position that would be created by an extension of those adverse factors, and our legislators must not be allowed to ignore or forget them. Once awakened to their seriousness, we may hope that Labour will co-operate to safeguard industry from the restriction and dislocation that still threaten it. It is a truism that Labour can help itself and industry in innumerable legitimate ways. The industrial conditions of to-day in South Africa call for less mere manual skill and more general intelligence on the part of the white employee. Thus the extension of general education must be looked on as a necessary condition for industrial progress, even though that in itself must not be the deliberate object of the educator. The methods of improving the industrial value of workers are (a) improved general and technical training of the whole population, (b) importation of skilled labour, (c) technical education, both industrial and commercial, of experts either within the country or abroad. Social reforms, such as the provision of adequate housing accommodation and provision of proper medical attention, may also be included. Prof. Leslie, in a recent Government paper, reminds us that the Public Health Service in the United States has made labour possible in districts which were formerly so unhealthy that land which should have been worth £12 an acre, was only worth £3. Such reforms, of course, can generally be justified as ends in themselves as well as aids to industry Along this line lies a vast field for constructive legislation that will amply tax and reward the energies of our new legislators. It is permissible to hope that in this direction rather than in that of predatory socialistic raids on vested interests and private enterprise, lies the future of triumphant organised Labour in this country.

Auckland Park Shares Change Hands.

It is an open secret that Sir Abe Bailey has acquired the controlling interest in the Auckland Park Real Estate Co., Ltd A London financial paper says: "Evidently there is some move on, for an important firm of brokers, more particularly identified with the South African Mining Market, is inviting shareholders to sell them at 12s. 9d. per share. The firm states that it has bought 100,000 of the shares, and is offering for the balance of 48,000. In the way of dividends the company has not made any great name for itself yet, for, although at £4 10s. each, dividends do not seem to have gone beyond 3¾ per cent., a very inadequate return, especially when payments have not been continuous. It may be that the prospects of the company have undergone a change in consequence of the free market for the sale of gold."

* * * *

Recovery of Tin by Flotation.

In view of the progress which has already been made by Messrs. Taylor & Partington at East Pool mine with the recovery of tin oxide by a flotation method, and of the impending installation at South Crofty of an experimental unit of plant by the flotation experts, Minerals Separations, Ltd., hopes run high that ere long we shall have it settled quite definitely that a much better percentage of recovery can be obtained by the flotation method of concentration than has been secured hitherto by gravity concentration from Cornish tin ores. Use of the flotation process does not involve the purchase of costly machinery, and once the flotation plant has been satisfactorily adjusted to suit the product of a mine, the labour required for superintendence is small compared with the tonnage capacity of the plant. Pending an announcement concerning the latest results achieved at East Pool mine, and the start of experimental work at South Crofty, it is interesting to note what experts on flotation have had to say on the subject recently so far as the treatment of tin ores is concerned. The latest bulletin of the Institution of Mining and Metallurgy contains further discussion of the notable paper on flotation contributed by H. Livingstone Sulman (who, by the way, has just been awarded the gold medal of the Institution), and we note that Sir Thomas Kirk Rose, in the course of his remarks, said he had been much interested in the few occasional references made to the flotation of cassiterite (tin oxide), and he would have liked to see some of the data on which the revolution that this could be separated from other oxide was based. In his reply, Mr. Sulman said that until practice had confirmed the procedure experimentally adopted it would be premature to publish details which might require modification. "As to practice," he added, "a number of semi-large scale trials have been attended with satisfactory recoveries, and a plant is shortly to be erected in Cornwall to test these results on a working scale." Another contribution on the interesting subject of flotation has just been made by Mr. Walter Broadbridge, the well-known engineer associated with Minerals Separation, Ltd. In the course of his paper, Mr. Broadbridge asserts: "Several years ago it was found possible to float tin oxide; the results were not greatly superior to those obtainable by gravity methods, and were not, therefore, of commercial value. Over two years ago the problem was again attacked, and recoveries of over 90 per cent. with a fair grade of concentrate were obtained, on large scale tests." It would be interesting to know on what scale these tests were conducted, as it has been stated that the experiments carried out at one or two places in Cornwall some years ago were unsuccessful.

SIEMENS BROTHERS
& CO., LIMITED.

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE,
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

WIRES

Rubber Covered. Gutta-Percha Covered.
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

PRIMARY CELLS

Fluid and Dry.

Representative in South Africa :

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202.
Telegrams: "WOTAN."

THE DIAMOND BOOMLET.

Some Sensational Fluctuations—A Study in Market Valuations—Other "Boomlets" Recalled—"The Recipe for Diamonds."

For the past week or two Johannesburg has been in the throes of one of those periodical financial convulsions which are common to this town. The diamond boomlet has been upon us and new syndicates are constantly being launched upon the market. The word "boomlet" does not, so far as we know, appear in any dictionary, but it clearly implies a diminutive of boom, which latter word it seems is only applicable to the big gold stocks. "Boom" appears in the dictionary as "a hollow roar; a period of active business, etc., etc." The two interpretations seem peculiarly applicable to the extensive and intensive dealings in diamond syndicate shares, which have recently been such a feature of the local market. As Noah Webster puts it, "a hollow roar" very clearly denotes the excited eloquence of brokers when the latest diamond venture is being rushed.

A Comparison in Values.

The rapid fluctuations of some of these speculative stocks are sufficient to make a man rich during a short luncheon hour and thereafter to render him a bankrupt by tea-time. The shares of the Greig Diamond Syndicate, for instance, which is well in the advance of all other concerns in the premium race, depreciated by fifty per cent. in the space of a few minutes a day or two ago. The market valuation of this proposition during the past week has frequently been equal to the valuation of the Wolhuter gold mine, which is a long-established and full-equipped gold mine paying dividends and possessed of 693,894 tons of ore in reserve! And if the sum total of the market valuation of all these various diamond ventures is computed, an amount equivalent to the value of a goodly sized Far East Rand gold mine would be arrived at!

More Information Wanted.

We do not say that none of these propositions justify the share prices which are at present quoted for them. A payable diamond mine is unquestionably a very valuable possession. But before going Nap on this class of insecurity, the public would be well advised to obtain a good deal more information about these properties than is at present vouchsafed to the Press. Not a few of these so-called new ventures are old properties masquerading under a fresh name. Just as many Anglicised Germans found it convenient to change their patronymics during the War, so has it been rightly argued in the case of several of these diamond syndicate ventures that a re-baptism is necessary if the propositions in question are to catch on. The man who lost the greater part of his all in, let us say, Swindlevlei Diamonds a few years ago is not likely to have another flutter in Swindlevleis. But there is no earthly reason why he should not be induced to regain all he lost in Swindlevleis by purchasing New Croesus Consolidated Diamond Syndicate, Ltd. (which is merely Swindlevlei redivivus) shares at a goodly premium.

The New Conditions and the Old Methods.

We admit, of course, that the greatly enhanced prices now being obtained for diamonds make all the difference in the world to some of these ventures. Under to-day's conditions a mine yielding only 4 carats per 100 loads may be quite a profitable venture, whereas a year or two ago it could only be run at a loss. But it is questionable whether some of the concerns which are now engaging attention will ever produce four carats let alone demonstrate the presence of a payable mine. The usual procedure in connection with some of these concerns is, or should be, pretty well known by this time. It is merely this: Obtain an option over a piece of veld in the vicinity of the property of some favoured syndicate, get a favourable report from a gentleman who looks on life through roseate spectacles, float a syndicate with one or two venerable old dug-outs on the Board and one or two astute market riggers in the background, form a pool, cautiously dish out the scrip to the public, etc., etc. This is the recipe for diamonds, or rather for a diamond syndicate, and in nine cases out of ten it is successful from the promoter's point of view and eminently unsuccessful from the point of view of the public, who generally find themselves "left" with the scrip at the end of the game. Strange how these boomlets come and go, and stranger still that the public never learns the lesson.

A Ruinous Retrospect.

Looking back over the past eighteen years one can recall a veritable multitude of these "periods of active business," as the dictionary has it. There was the Coronation boom, when that ill-famed concern's shares rose to about £3,000 and a host of satellites were floated to ride on its back. And when Humpty Dumpty fell all the satellites of course crashed with him, and all the King's horses and all the King's men can never recover the money that was lost over those ill-starred enterprises. A little later there was the Vlaklaagte tin boom, when Sallies soared to £8 10s. and were bought at amazing prices. Again Humpty Dumpty collapsed, and there are people who are still paying "differences" in connection with those transactions. Shortly afterwards, however, came the diamond boomlet of 1906, and the names of Vulcans, Ajaxes, Great Lulus, etc., will no doubt be sorrowfully remembered by some who read these lines to-day. There have been other periods of industrial activity since then. But in the long run the result is always the same. Sooner or later the leading horse falls and brings down with him the whole field amidst sighs and sobs from the stricken crowd.

Taylor Brothers & Co., Ltd.,
Clarence Iron & Steel Works,
LEEDS, ENGLAND.

Manufacturers of
Railway Carriage and Wagon Tyres.
Railway Wheels and Axles.
Forgings.
Taylor's Best Yorkshire Iron.
Special Stay Bolt Iron.
Coupling Pin Steel.
Rolled Steel Disc Wheels.
Buffer Pins, etc., etc.

Sole Representatives for the Union, Rhodesia and Mozambique:
EDGAR ALLEN & Co., Ltd.
(G. F. Wills, Manager).
5, NEW CLUB BUILDINGS, JOHANNESBURG.

BARTLEITE
JOINTING
& STREBOR
PACKINGS

— ARE MADE TO "MAKE GOOD." —

They *have* made good in this country. This is well and conclusively proved by the fact that those who were buying "Bartleite" and "Strebor" from us ten, eleven, twelve and more years ago, are still buying from us, and in bigger quantities, to-day.

And "Bartleite" Jointing and "Strebor" Packings are constantly making many *new* friends. They are being bought by those buyers and users who in these days of all-round higher working-costs are more than ever seeking and insisting on highest quality, maximum reliability and dependability, utmost service and true economy. That is, those who look for marked savings on *ultimate* costs rather than for any slightly lower *initial* costs alone.

Are we supplying YOU with "Bartleite" and "Strebor"? Big stocks of "Bartleite" are carried in thicknesses of 1/32, 1/16, and 1/8th inches and of "Strebor" in all sizes from ¼ to 2 inches.

J. W. ROBERTS, Ltd., of Leeds, are the makers and we are the Sole South African Agents.

BARTLE & CO.,
LTD.,
LOVEDAY HOUSE. Phone 3553. Wires: "FAGGOT."
P.O. Box 2466.——JOHANNESBURG.

THE WOLHUTER'S IMPROVED OUTLOOK.

What the Premium on Gold Means to this Company's Dividends and Life—The Profitable Value of the Ore Reserves.

The twenty-second annual meeting of the Wolhuter Gold Mines, Ltd., will be held on Wednesday, March 24th, when it is anticipated that the chairman of the board of directors will have a satisfactory statement to make to shareholders in this long-established Central Rand mine. The reports of the directors and of the consulting engineer have already appeared in the columns of this journal, but further attention may be directed to the doings of the Wolhuter since the close of the financial year in view of the incidence of the increased premium on gold and of the satisfactory results secured by this company during last month, when short running time, native strikes and increased working costs due to the retrospective adjustment of white wages, had such a detrimental influence on last month's working profits for the Witwatersrand.

Improving Returns.

The Wolhuter, although £2,700 had to be allowed for increased white wages account, managed to crush 29,700 tons for a profit of £10,163. Working costs were 27s., and the gold output for the month was valued at £5 10s. per fine ounce. The present price of gold is over £6 per ounce, and if an extra 10s. per ounce be allowed for in computing the company's earnings it would bring the Wolhuter's February profit up to over £14,000. This old mine has been securing steadily improving returns of late, and it will be of interest to tabulate statistics of output and profit, etc., for the past three years and for the period which has elapsed since the conclusion of the company's last financial year. The appended table gives these statistics, and in connection with them it should be realised that the January and February returns include the premium on gold at £5⅜ and £5½ per fine ounce respectively.

	Tons Milled.	Revenue.	Revenue per Ton.*	Working Costs per Ton.	Profit.
Year 1916-1917 ...	406,750	500,456	24/7	17/9	139,342
Year 1917-1918 ...	382,950	456,148	23/10	19/8	78,875
Year 1918-1919 ...	348,920	431,053	24/8	22/1	45,718
November	27,000	36,581	27/0	23/0	4,953
December	25,000	36,110	28/8	25/9	2,896
January	29,800	45,048	—	22/8	11,492
February	29,700	50,334	—	27/0	10,163

The working profit secured by this company for the year ended with October last was £64,316, and the year's accounts show that the company had at the end of the year a balance unappropriated, represented by cash investments and cash assets less liabilities, of £63,994.

The Financial Position.

Last year the company declared two dividends, each of 2½ per cent., which absorbed £43,000, but for the current twelve months the company should, in view of the large increase in the selling price of gold be able to distribute a substantially larger sum. The gold premium will also exercise an important influence on the duration of profitable operations.

The Question of "Life."

Speaking of this matter at the annual meeting of the company held a year ago, Mr. A. F. Mullins, the chairman, remarked: Shareholders frequently ask "What is the lifetime of the mine?" That is a difficult question to answer at any time, and the varying factors set out above make it impossible to be definite. The Government Mining Engineer's estimate is four years from the 1st November last, which of course assumes normal conditions, and it would be unwise to expect a longer period than that. At the same time, if we can recover a considerable tonnage from reclamation work, and that is possible, then the four years may be extended to a commensurate degree. On the subject of development and life it is important to observe the remarks of the consulting engineer contained in the report for the twelve months ended with October last.

Ore Reserves and Their Value.

In this Mr. Cazalet says:

	Tons.	Value Dwt.	Stoping Width Inches.
Pyritic Quartzite	22,920	6·0	64
Main Reef	165,976	1·7	70
Leader	129,798	7·1	52
South Reef	313,415	5·5	63
Immediately available ...	632,109	5·7	62
Shaft and boundary pillars	61,785	6·5	54
Total	693,894	5·7	62

The total payable reserves show a decrease of 162,976 tons as compared with the reserves at the end of last financial year, the value over a slightly smaller width being less by 0·1 dwt.; these reductions are due solely to the difference between the ore mined from the payable reserve and the payable ore developed, the pay limit on which calculations have been based remaining the same as for the previous year. In addition to the above payable reserves there is an amount of 105,000 tons of an average value of 4·3 dwts. which also could be included should a 20 per cent. premium on the value of gold be maintained.

Since this report was written gold has advanced in price to over £6 per ounce. If we calculate the value at this latter figure we can arrive at the following interesting results: 693,894 tons at 5·7 dwts. per ton = 34·2s. per ton. Assuming working costs in a normal month to be not more than 26s. per ton milled, the resultant profit on the above tonnage with gold at £6 per ounce is not less than £280,000. In addition there is the accumulation of low-grade ore, a large amount of which is capable of yielding a profit, and there are further sources of supply in the shape of reclamation and in the small sections of the mine which are not yet fully developed. Taking all these factors into account, it looks as if the Wolhuter's expectation of life may very well exceed November 1st, 1922, the date estimated by the Government Mining Engineer as marking the close of this mine's career. This calculation was framed before the gold premium exercised such a favourable influence on Witwatersrand gold mining, and as we pointed out in our last issue this premium not only improves profits but tends to substantially lengthen the "lives" of claim areas.

FURNACES
For all purposes.
50% Saving in Fuel.
COAL, COKE, OIL, GAS, WOOD, etc.
THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

TRADE
JENKINS
MARK

Diamond Trade Mark
—the positive means of identifying
Genuine Jenkins Valves

OBTAINABLE ONLY FROM
C. WHARTON HOOD & CO. (S.A.), Ltd.
P.O. Box 6096. **'Phone 973.**
Offices: SOUTHERN LIFE BUILDINGS,
HARRISON STREET, JOHANNESBURG.

THE FEBRUARY OUTPUTS AND PROFITS REVIEWED.

A Disturbed and Unsatisfactory Month What Increased Wages and Strikes Have Meant -The Rand an Unprofitable Proposition Without the Gold Premium—Outlook for March—Prospects of Twenty-Two Mines.

As was generally anticipated, the output and profit figures for the Witwatersrand in respect of last month's operations compare unfavourably with the results secured for the month of January, and this despite the fact that last month's production was valued at £5 10s. per ounce, whereas the January returns were based on a selling value of £5 7s. 6d. per ounce. Several companies exhibit substantial losses for last month, and if they had been selling their produce at the old rate the losses of many mines would have been colossal and the aggregate profit of the whole Witwatersrand would have been infinitesimal.

Disturbing Factors.

Five Sundays in a short month, native labour strikes, increased charges in respect of gold realisation, and last but by no means least the retrospective readjustment of white wages in terms of the Chamber's latest concession played havoc with the earnings of the mines last month. The only satisfactory feature in last month's statistics is the small improvement in the numbers of the Rand's labour complement, and it is hoped that this favourable factor will have a beneficial and sustained influence on the current month's operations, for which the outlook is favourable.

Better Outlook for March.

Gold is now selling at £5¾ an ounce, and granted no unforeseen interference with the operations of the mines, there is no reason why March outputs and profits should not be eminently satisfactory. The full effect of the gold premium on the Reef as a whole and on individual concerns is only now beginning to be properly appreciated, and attention may be directed to an interesting tabulation which appears in a leading overseas financial authority on this subject.

Interesting Calculations.

The *Statist*, in its issue of January 21, contains an interesting table setting forth the prospects of twenty-two Rand mines. The outlook for these propositions is considered in the light of the gold premium, and in the tabulation there is a column which expresses the incidence of the enhanced price for gold on the basis of a percentage of capital The schedule is as under:

	Issued Capital £	Year 1919 Gold Output £	Year 1919 Working Profit £	Approx. Inc. or Dec. on 1918 £	Est. Realised Extra Gold Premium £	1919 Dividend £	1919 Dividend %	Inc. £ Cap	20% Gold Premium per Ann. £	20% Gold Premium per Ann. % on Cap.	Ore Milled 1919 Tons	Mill Capacity Tons	Working Costs per Ton 1914	Working Costs per Ton 1919*	Ore Reserve Supply Yrs.†	App. Life Yrs.§
Brakpan ...	823,600	1 038,585	315,436	—50,900	97,000	224,365	27½	—32,743	207,000	23	544,200	900,000	18/6	26/6	4	20-25
City Deep ...	1,250,000	1 180,942	324,744	—122,700	118,000	296,875	23¾	—46,875	236,000	18¾	617,800	960,000	22/5	27/8	5	25-30
Con. Lang. ..	950,000	638,304	119,742	—35,900	58,000	118,750	12½	+71,250	127,000	13½	507,800	620.000	14/9	25/1	3½	12-15
Con. M. Reef ...	1,247,602	861,968	97,000	—21.200	82,000	109,165	8¾	+31,190	172,000	13¾	554,690	660,000	21/2	27/7	2	long
Crown	940,106	2 702,708	460,765	+40,500	270,000	376,042	40	+188,021	540,000	57½	1,845,000	2,700,000	15/7	24/3	4½	long
Geduld ...	1,151,824	776,468	253,601	+21,200	75,000	184,290	16	+135,790	155,000	12	516,000	530,000	24/5	20/2	5	50
Geldenhuis ...	585,753	660,017	11,237‡	—14,100	61,000	58,575	10	+14,643	125,000	21½	560,100	700,000	22/10	25/9	2½	short
Govt. Areas ...	1,400,000	2 418,582	995,546	+124,800	233,000	525,000	37½	+140,000	483,000	—	1,361,000	1,600,000	20/4	21/0	8	25-30
Lang. Estate ...	886,500	590,781	87,830	—50.147	52,000	132,976	15	+22,163	118,000	13	475,480	600,000	18/0	21/4	2¼	20
Meyer & Charl.	200,000	479,135	272,329	—4,700	45,000	240,000	120	+20,000	96,000	45	165,937	180,000	17/4	23/8	2½	short
Modder ...	1,400,000	1 979,951	1 064,387	+91,800	190,000	980,000	70	+253,750	396,000	28	882,100	1,200,000	15/5	20/9	10	19
Modder B ...	700,000	1 423,827	695,355	+32,000	142,000	647,500	92½	+70,000	285,000	42	649,500	720,000	15/7	22/6	5	20-25
Modder Deep ...	500,000	1 107,372	640,721	+51,000	108,000	563,095	112½	+75,595	221,000	44	507,200	520,000	—	18/5	6½	18-20
Nourse ...	827,821	604,960	11,359‡	—33,600	57,000	31,042	3¾	+6,042	121,000	14½	463,100	600,000	20/5	27/0	3¼	20-25
Randftein Cent.	4,500,000	1 990,460	105,876	+18,800	378,000	—			398,000	8¾	1,729,400	3,000,000	16/7	22/1	2¼	long
Rose	700,000	705,251	125,510	—16,000	66,000	175,000	25	+52,500	141,000	20	587,000	840,000	16/7	19/9	4½	5-8
Springs ...	1,193,236	829,286	250,567	—174,000	78,000	Nil	---	—144,188	165,000	11¼	434,610	480,000	—	26/8	5	long
Van Ryn ...	500,000	399,027	60,000	—23,500	38,000	62,500	12½	+12,500	80,000	16	368,220	550,000	15/2	20/0	3¼	9-12
Van Ryn Deep	1,196,892	1 262,563	658,410	+46,500	125,000	718,135	60	+179,534	252,000	21	568,400	640,000	16/6	21/4	4¼	20
Village Deep ...	1,060,671	760,843	25,257	—42,700	71,000	66.291	6¼	+26.516	152,000	14¼	678,300	700,000	17/8	21/9	3¼	—
Wit. Gold ...	469,625	465,971	55,113	—26,000	43,000	46,962	10	—23,482	94,000	20	396,850	530,000	13/4	20/8	3½	10-12
Wolhuter ...	860,000	430,942	43,738	—23,000	40,000	43,000	5	—10,750	86,000	10	344,350	430,000	16/11	22/10	2	short

* For last six months of 1919 reckoned at 19 per cent. † On 1919 rate of milling. ‡ Loss. § Life reckoned on full plant capacity.

Note.—Government participates in profits of Brakpan, Government Areas, Springs and Meyer and Charlton.

As a matter of fact, the premium on gold is much nearer forty than twenty per cent. at the present time, even after allowing for increased gold realisation charges, and it seems to us that the *Statist's* figures express the improved prospects for mining on the Witwatersrand in a very conservative manner.

Mr. Holt Thomas on Air Problems.

Mr. G. Holt Thomas, head of the Aircraft Manufacturing Co., in the course of an address in London on "Commercial Communication by Air," said it was the support of commercial air lines in other countries that constituted the real danger to Great Britain. Every day we were dealing with questions of aerial transport in every country in the world, but nothing in Great Britain. It might be said that from practically every other great country to-day, news came which showed they were alive to the importance of flying. In no other country had there been such an attitude of aloofness. After appealing for the support of all Chambers of Commerce for aerial services, and particularly for the London-Paris service, Mr. Holt Thomas pointed out that the longer the route the greater the advantage of the aeroplane. He was certain in stating that Australia could be brought within five days of London.

Armstrong-Whitworth Diesel Engines.

Realising the great future of the Diesel engine for ship propulsion, Messrs. Armstrong-Whitworth & Co. have entered into an agreement with the well-known Swiss firm of Sulzer Bros., whereby they acquire a licence to manufacture and sell, in Great Britain and the Colonies, two-cycle marine engines embodying the best features of the Sulzer system. It has been decided to adopt the two-cycle principle on account of the proved reliability and efficiency of this type of engine, its high ratio of horse-power to size and weight, and its ability to work continuously on Californian or Mexican crude oils of high sulphur and asphalt content, which are the cheapest fuels at present on the market. Engines aggregating over 600,000 b.h.p. have now been built by Sulzer Bros. on the two-cycle principle, and the experience they have gained in regard to both design and manufacture will be placed at the disposal of Armstrongs in the production of the new engine.

"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 90-lbs. It is Suitable for Stoping, Raising and Driving. Low Air Consumption. It drills 30% faster than any other drilling machine.

No Mine Manager can afford to neglect the economic merits of the - - - - **'HYDROMAX'** **The Fastest Rock Drill in the World.**

We have exclusively manufactured drills for thirty-seven years and the "HYDROMAX" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
CARN BREA, CORNWALL (Wm. C. Stephens, Managing Director).

Agents— **WM. HOSKEN & CO.,**
Phones 4113/9. Box 667. JOHANNESBURG. **Telegrams: "HOSKEN."**

To a 1000th Part of an Inch

THAT is the accuracy with which we draw our wire. That alone is important; but it is also symbolical of the care and precision with which the smallest stage of each of our processes is carried out. Our knowledge of working conditions and the best design and quality of rope to suit them is world-wide and comprehensive. We are the only British Wire Rope Manufacturers who make Ropes from the Pig-iron upwards. Therefore, we are the only British Makers who can directly control and apply our knowledge of the essentials to suit the user's conditions of work throughout *every* process.

1. THE STEEL.
2. THE ROD.
3. THE WIRE.
4. THE CONSTRUCTION.
5. THE DESIGN.
6. THE SPINNING.

The ultimate production is scientifically accurate, and of highest practical efficiency, being expressly made **throughout** with the user's requirements always in view.

GEO. CRADOCK & CO. LIMITED
WAKEFIELD, ENGLAND.

SOUTH AFRICAN ADDRESS: 75-77, Cullinan Building, Johannesburg
P.O. Box 316. —— Tel. Address: "ROPES." —— Tel. No. 539

PERSONAL.

Mr. Frank Raleigh left on a visit to England this week.

* * * *

Mr. H. C. Boyd sails by the Armadale for England this week.

* * * *

Mr. Minnett Frames is leaving on a six months' trip to the South-West Protectorate.

* * * *

Mr. H. N. Wales, of the S.A. Carbide and By-Products Co., Ltd., visited the Rand this week.

* * * *

Sir David Harris announced at Kimberley last week that De Beers had commissioned Mr. K. B. Quinan to investigate the possibilities of certain local industries.

* * * *

We greatly regret to announce the death, which took place suddenly last week, of Mr. J. M. McKean, of Messrs. Fraser and Chalmers (S.A.), Ltd. Mr. McKean represented Messrs. T. & W. Smith, the well-known wire-rope manufacturers.

* * * *

The twenty-fourth annual general meeting of members of the Geological Society of South Africa will be held in the Council Chamber, Chamber of Mines, Johannesburg, on Monday, 22nd March, 1920, at 8.30 p.m. Business: (1) To receive and consider the annual report and statement of accounts for the year ending the 31st December, 1919. (2) To elect twelve members of council in place of Messrs. E. H. Clifford, A. L. du Toit, A. L. Hall, H. S. Harger, G. G. Holmes, H. Meyer, E. T. Mellor, P. M. Newhall, A. W. Rogers, D. Wilkinson, H. B. Maufe, and R. B. Young, who retire under the rules of the Society. (3) To elect a president, vice-presidents, and honorary secretary for the ensuing year. (4) To elect an auditor for the ensuing year. Dr. A. W. Rogers will deliver a presidential address in lieu of Mr. J. J. Garrard, president, who is away.

* * * *

The list of certificates issued by the Mines Department for the period ended March 5, 1920, is as follows:—Mine Managers (Collieries): J. Williamson. Mine Overseers (Metal Mines): J. Kable, E. W. C. Sprawson, J. A. Wilkes; (Collieries) A. Dawson; (Diamond Mines) W. Alexander, J. Cann, J. J. Cross, G. C. Elliott, A. Gray, G. Murray, J. B. Stewart, T. Studholme, R. Waddington, E. Walker. Mine Surveyors: R. S. Cunliff, C. S. Sterling. Mechanical Engineers (Mines): J. O. Arnold, A. E. Bartlett, T. B. Berry, W. E. K. Brindley, D. P. Hogg, W. Kydd, R. McBey, W. R. Nicholson, L. Rowley, J. B. Bulloch, M. B. Sénèque, C. W. Turner; (Works only) C. F. Berry. Electrical Engineers (Mines): J. Hannah, C. L. Liesching, W. A. Pitts, M. B. Sénèque.

CORRESPONDENCE AND DISCUSSION.

Greig Diamonds: A Disclaimer.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—We have been consulted by Mr. A. C. Hughes of this town with reference to the article appearing on page 17 of the issue dated 6th March, 1920, of your paper, *The South African Mining and Engineering Journal*, in which you state: "It is now known that Mr. A. C. Hughes, of S.A. Diamond fame, is identified with this concern." Our client instructs us to inform you as follows: He has nothing to do with Greig Diamonds, Ltd., and is neither a promoter, director, or in any other way interested in the company, save as an ordinary shareholder of shares he bought in the open market. You will therefore please refrain from connecting our client's name with the company.—Yours, etc.,

HUTCHINSON, BOWEN & SESSEL.

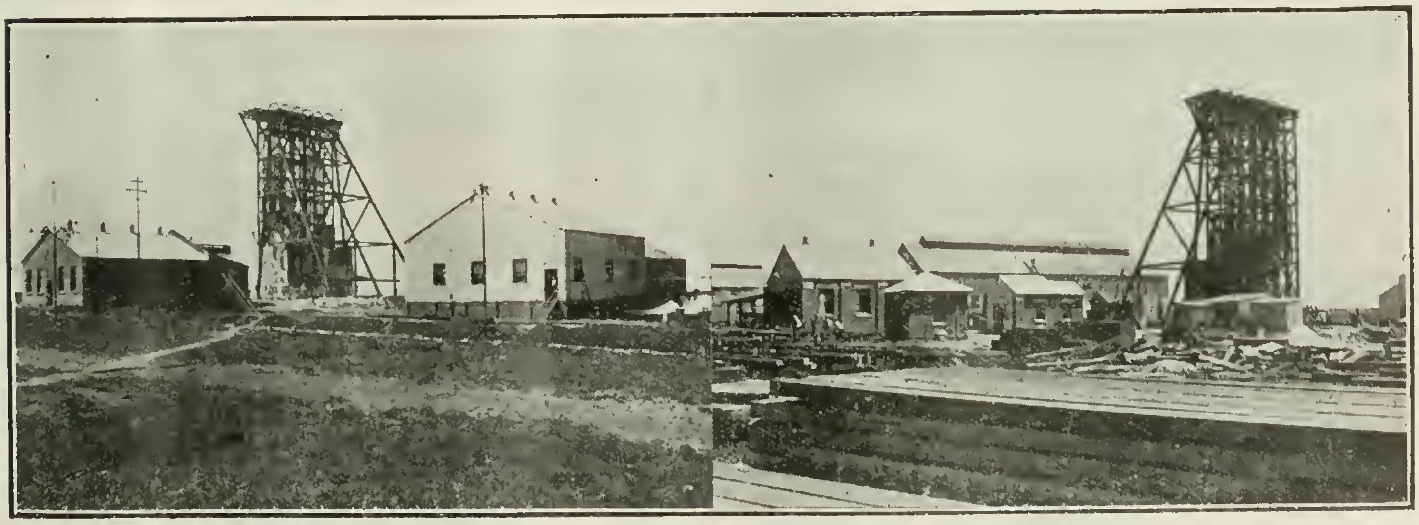
Johannesburg,
6th March, 1920.

[We very much regret that the remarks in our sharemarket article should have been taken amiss by Mr. Hughes. We certainly did not mean to cast any reflection on him.—Ed., *S.A.M. & E.J.*]

The Department of Irrigation is inviting tenders for the following: Sealed tenders, superscribed "Tender for the supply of 4-inch American Piping Pump Rods, Jacks, etc.," must be addressed to the Chairman of the Union Tender Board, Union Buildings, Pretoria, and must be in his hands by 3 p.m. on Wednesday, the 19th day of May, 1920. 10,000 ft. of 4in. American screwed and socketted black mild steel or wrought-iron piping, 90ft. 4in American threaded wrought or malleable castiron tee-pieces, 14,000ft. of ash or tubular pump rods, 150 8-ton traversing jacks, 80 8in. earth augers, 20 8in. pipe cutters, 100 semi-rotary wing pump 1½in., 100 4in. pipe clamps, 100 6¼in. pipe clamps, 80 8in. pipe clamps, 80 brass deep well cylinders, 3¾in. by 60 to take a 4in. rising main, 200 turnbuckles, 90 connections rod to beam, 90 4in. hoisting links, 80 leg vices, 100 sets stocks-dies, Whitworth, ¼ to ¾, 100 sets stocks-dies, solid pipe, ¼ to 2, 150 12lb. sledge hammers, 100 engineers' ratchet braces, 200 Vulcan chain tongs to take up to 8in. pipe, 200 steel stakes, 40 anvils Any further particulars may be obtained upon application to the Director of Irrigation.

Tenders for the supply of steam boilers are also called for. Ten new locomotive type steam boilers, developing approximately 16 effective horse-power working at 100 lb. pressure per square inch under easy firing and natural draught.

SHAFT SINKING PROGRESS AT WEST SPRINGS.



WEST SPRINGS: NO. 1 SHAFT, 1,100 FT. DOWN.

WEST SPRINGS: NO. 2 SHAFT, 800 FT. DOWN.

ORE TREATMENT AT THE CONNEMARA MINE.

Mr. B. L. Gardiner, consulting engineer to Willoughby's Consolidated Co., Ltd., has lately sent a communication to the Chemical, Metallurgical and Mining Society of South Africa describing the successful treatment of the ore at the Connemara Mine. We extract the following from his paper as likely to be of interest to our mining readers, and the full text of his paper may be found in the January issue of the Chemical, Metallurgical and Mining Society.

Mr. Gardiner sets forth the essential principles involved in a process which, for the sake of a better name, has been termed the "baking process," and which consists merely in subjecting the ore to the action of heat preparatory to treatment by cyanide solutions. It differs from the ordinary "roasting process," in that the degree of temperature to which the ore is raised is much lower than that necessary for the roasting, and, further, that the presence of air or oxygen is in no way essential to its success, the application of a certain amount of heat being all that is necessary. The net result of the introduction of the baking system at the Connemara mine has been to increase the extraction from 68 per cent. to 86 per cent., with little or no increase in the working costs.

The ore of the Connemara mine belongs to the class known in Rhodesia as banded ironstone, and at present only the upper oxidised portions of the lodes are being worked, and it is solely with this oxidised ore that this paper treats. Besides the silica and iron oxides which make up the bulk of the ore, qualitative analysis shows the presence of combined water, magnesia, and sulphates.

The original plant consisted of twenty 1,250lb gravity stamps and one 5ft. Chilian mill as crushing units, followed by sand leaching and slime decantation plants, the gold being recovered by amalgamation on copper plates and by zinc shaving precipitation of the cyanide solutions. The best commercial results were obtained by using 200 screening on the mill. The average results over a period of twelve months were: 4,000 to 1,600 tons per month treated, 67.9 per cent. extraction. Re-treatment of residues failed to recover any more gold, and laboratory tests merely tended to show that the plant was doing all that could be expected of it. Without the addition of lime there is excessive consumption of cyanide, and this has been attributed to the action of ferric sulphate or basic iron sulphates. The consumption of lime is high, being from 6 to 8lbs. per ton of CaO.

Mr. Gardiner conducted many experiments in roasting the ore for the details of which we refer our readers to the text of the paper itself, and he goes on to say that it was apparent from some of these tests, which consist of direct cyanide treatment only, that preliminary amalgamation is not a necessity for good extractions, evidently the gold being sufficiently fine to dissolve in cyanide solutions in a reasonable time. It was eventually decided to erect a plant suitable for treating ore on a working scale, and for this purpose a rotary drier was installed, the following being a short description of the arrangements.

THE PROCESS.

The drier consists of a tubular shell of $\frac{5}{8}$in. boiler plate, 32ft. long and 5ft. diameter, made in five sections and set at an inclination of 1ft. in 16ft., or a total fall of two feet over its whole length. The shell revolves about its central axis, and is supported on six rollers, the turning action being communicated through a large spur wheel round the periphery of the tube, and is arranged to make one revolution in 45 seconds. The feed is led through a 6in. pipe at the higher end, and gradually travels down to the lower end, where the firebox is situated, and is there discharged into a small hopper provided with a discharge door. The interior of the drier is divided by means of steel plates set radially into four sectors for the first 18ft. of its length, and the last twelve feet is lined with fire brick at the end nearest the firebox. The firebox in which wood fuel is burnt has a grate area of 21 square feet. The tube at the far end from the fire enters a brick dust settling chamber, which finally leads to a smoke stack, the whole arrangement being such that the ore travels counter current to the hot gases from the fire. The baked ore is transported from the drier in trucks, and dumped directly into sand vats for treatment. The possible charring effect of the hot ore on the filter bottoms and of damage to the tanks is overcome by covering the bottom with an inch or two of solution before dumping, and then as the quantity of ore increases by pumping in more solution so as to keep the hot ore from direct contact with the tank.

So far only the fine, eliminated after the rocker breaker, has been subjected to baking, the balance of the ore going through the ordinary process of milling, amalgamating and cyaniding of sand and slime. The separation of the fine and coarse is done on a shaking screen provided with screening of $1\frac{1}{2}$in. aperture. It is estimated that the fine ore takes 30 minutes to pass through the drier. The time of treatment in the cyanide vats averages ten days, and the total quantity of solution in tons is at least one and a quarter times the tons of ore treated. The consumption of lime on the baked ore amounts to 10-12lbs. per ton in terms of CaO. The fine ore in mass has the appearance of rather coarse gravel, some of the lumps being as large as walnuts, and then all sizes. A liberal estimate of the average cost works out at about 1/10 per ton for the actual roasting, and including transport to and from the drier to about 2/2 per ton. The ore contains considerable proportions of hydrated oxides of iron, and when it is heated appreciable quantities of water are given off. This water, it must be understood, is not present as moisture, since it will not be driven off in a water bath at 100 deg. C., but requires a somewhat higher temperature, and it is evident that it exists in the ore as water of combination.

Mr. Gardiner concludes by saying: "As a process likely to be applicable to the generality of gold ores, baking is not likely to hold a very important place, as its success depends upon an unusual peculiarity. At the same time there may be other ores of a similar nature, and with such as these the baking process may find a beneficial application."

Great Diamond on View.

One of the finest diamonds in existence was on view in Messrs. Selfridge's jewellery department, says the "Financial News." The finder was Captain C. R. Lucas, D.S.O. For seven months Captain Lucas and his partner had been working a claim at Droogeveld, 50 miles from Kimberley, with disappointing results. They made arrangements to try their luck elsewhere, when an amber-coloured stone of $178\frac{1}{2}$ carats was found. The stone was placed in the hands of Mr. Bernard Oppenheimer, and when cut and polished was reduced to a pure flawless amber diamond, weight $61\frac{1}{2}$ carats. The cutting occupied three months, and cost £272. When war broke out the diamond was placed in the National Bank of South Africa in London, and Captain Lucas, who had served in the Boer War, placed his services at the disposal of the South African Government.

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 23 Certificates (1 conditional) 1919-20.
In 1917-1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record.*

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

THE NEED OF A MINES TRIALS COMMITTEE.

A Few Metallurgical Comments.

By G. A. Robertson.*

It is a pity that a new Mines' Trials' Committee has not been formed. It may be safely said that thousands of pounds are wasted on every reduction plant that is erected. Practically every new plant of any size costs £250,000 to alter. It takes two years before a satisfactory gold extraction is obtained, and the third year before the reduction charges become normal. In many cases these charges are not below the costs prevailing on mines built in earlier years. The quarter of a million to which I refer, if not found in the books of the mine, is amply borne out by the excessive reduction charges over the period stated.

The old Mines' Trials' Committee, no doubt, did a lot of useful work, but obviously the members did not work harmoniously together, consequently that body became dissolved; the primary reason being that they could not agree amongst themselves as to what constituted an "improvement." The members consisted of the Head Office officials of the various groups, and as the brains of the industry, they sat as judges of their subordinates' inventions. To those who know the inner history of the mines, the personnel of that august body laid themselves open to severe criticism. Some ideas put before them, which would not have cost more than £5, were turned down on the grounds of "expense," while, on the other hand, thousands of pounds of shareholders' money was wasted by our engineers in high authority by the wholesale adoption of untried inventions of their own. At this moment I do not propose to go into detail on that matter, but what beats one is that some inventions are lauded to the skies and every technical journal sings of their praise. A few years later engineers change mines, sometimes minds, and the high strung inventions are scrapped, but not a word to that effect ever appears in print. Any new Mines' Trials' Committee can never be a success without also having on that body independent engineers and representatives of the mine employees through their Unions. The Chamber of Mines prided themselves that the work of that body when in the flesh was done gratuitously. A Committee on more modern lines can be constituted at the same price.

I had occasion not long ago to visit a mine I had not been on for years, and my friend, an official of the mine, showed me over the reduction plant. To my question, "How is the plant running?" my friend replied, "Well, if I had my own way, the plant would run considerably cheaper." On my enquiring how, I was informed that this and that cannot be altered because it was designed in the head office. This state of affairs is not uncommon to the average reduction worker to-day, and the sooner the Chamber of Mines takes the matter up the better.

A well-known critic of Rand metallurgy wrote that "we should go back a few years and make a fresh start in our experiments." What he meant was that the conclusions arrived at were not decisive in his mind, and in some respects he was correct. Take, for instance, the stamp mill. It was agreed that increased discharge area or screen area would not improve the stamp duty. Those experiments were carried out on fine screening before the days of tube mills. Had they been carried out on coarse meshing quite the reverse conclusions would have been arrived at. The pneumatic stamp and the double discharge mortar box were only tested on fine screening, and the arguments adduced then prevented the Nissen stamp from being given a trial until a few years ago. Sufficient has since been done to prove that the five stamp single discharge theory is just a farce. Since tube mills are now crushing ore that has passed a one inch mesh in the stamp mill, it is difficult to understand how engineers don't look round for some compact, simple and inexpensive machine that will do the coarse crushing instead of the roaring stamp mill. It may be very interesting to read a description of some new milling plant, and the arrangement of the stamps, tube mills and cones, but when will we get down to rock bottom and call for tenders for the design, construction and operation of a crushing plant to crush so many tons a month to a certain fineness. Directors of mining companies will wake up some day and find that our engineers are lacking in co-operation at the shareholders' expense.

Butters' filters or slimes treatment seem to have made great strides since they were first introduced on the Rand. Engineers who criticised the filters then have since been forced to adopt them on economic grounds.

Sand filters have fallen into disfavour. They are still in successful operation on the group that introduced them, but have been scrapped on some other mines outside the group. For what reason I have never been able to get a satisfactory explanation.

Zinc dust precipitation does not appear to have made any headway beyond one installation, although low capital expenditure and a complete clean up are in its favour.

Cam shafts break where and when no one can predict, and no serious attempt has been made to obviate this breakage since the failure of the multiple cam shaft bearing support. The principle of that support may be proved correct, but the means adopted never had the ghost of a chance.

In the last issue of the journal I note your comments on the plate dresser which was exhibited at the last Mining Exhibition. A device of that nature was patented by D. C. King about seven years ago, and had a successful trial at the New Primrose Mine. No other mine wanted such an appliance then, and mercurial poisoning was little understood. The time is not far off when the steaming of plates will be prohibited. It never was necessary.

---

* In the *Reduction Worker.*"

The Royal Bank of Canada.

The year 1919 has been a notable one for the Royal Bank of Canada. The fiftieth anniversary of the founding of the bank was commemorated this year, and for the first time the total assets have exceeded the 500,000,000 dollars mark. The past twelve months have also witnessed a great extension of the foreign connections of this progressive institution. An important development has been the establishment of branches in the leading centres of South America. Before the outbreak of the War the Royal Bank of Canada inaugurated the policy of extending its facilities to the continent of South America, but when 1,500 of the bank's employees were called to the service of their country, it was found necessary to postpone the establishment of new branches.

The history of the Royal Bank of Canada has been one of remarkable progress. Founded 1869 under the name of "The Merchants Bank of Halifax," its importance as an international institution began in 1900, when the Head Office was moved to Montreal, and the name of the Bank changed to the present one. In the year 1910 a series of important mergers commenced when the Union Bank of Halifax was taken over. This was followed in 1912 by the taking over of the Traders Bank of Canada, in 1914 of the Bank of British Guiana and the Bank of British Honduras, in 1916 of the Quebec Bank, and in 1918 of the Northern Crown Bank. To-day the total paid-up capital and reserves of the bank amount to 35,000,000 dollars, and total assets exceed 500,000,000 dollars.

The branches of the Royal Bank of Canada now cover the leading centres of Canada, the West Indies, Central and South America, and the great financial centres of the world. In addition to the offices in New York, London, Paris and Barcelona, the bank has 544 branches in Canada and Newfoundland, 44 in Cuba, Santo Domingo, Haiti, Porto Rico and the French West Indies, 13 in the British West Indies, and 15 in Central and South America. The bank is therefore in a position to offer unrivalled facilities to traders doing business with these countries.

The "Kelco" Patent Shovel Point.

To Gold, Copper, Tin and Base Metal Mining Companies, P.W D., Railways, Municipalities, Quarry Owners, Contractors, Etc., Etc.

CUT YOUR SHOVEL BILL IN HALF.

" BRINGS DOWN WORKING COSTS."

Full particulars from the SOLE AGENTS FOR SOUTH AFRICA:

KELLY & COY., Mining Material Merchants and Contractors,

42, WINCHESTER HOUSE, JOHANNESBURG.

Application for Sub Agencies outside the Witwatersrand invited.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

Works Phone 2484.

CHRISTOPHER & SHILLITO, Ltd.

P.O. Box 1082.

ENGINEERS AND IRON FOUNDERS.

C/o Miller and Eighth Streets.

New Doornfontein. JOHANNESBURG.

SPECIALITIES.---Steelwork, Castings, Trucks Coal Tubs, Forgings, Tanks, Pump Spares, Mill Spares, Shoes and Dies (Old Park Forge, Sheffield, England).

United Asbestos African Agency,

LIMITED.

Telephone No. 345, Central. 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR

BELL'S UNITED ASBESTOS CO., LTD.

(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD).

VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

"GLADIATOR" ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of "Gladiator" Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

THE FEBRUARY OUTPUT IN DETAIL.

Considerable Drop Owing to Native Strike—Increased Working Costs—Additions to the Native Labour Supply.

The strike of mine natives caused the output for February to be the lowest announced by the Chamber of Mines since the Far East Rand mines came into existence. Compared with January, the February total shows a drop of 45,720 ozs. There were 24 working days in February as against 26 in January. The totals for the two months are as follow:

WITWATERSRAND

	Ozs.
January	653,842
February	607,918
Decrease	45,924

OUTSIDE DISTRICTS.

February	17,412
January	17,208
Increase	204

GRAND TOTAL.

January	671,050
February	625,330
Decrease	45,720

The value of the February output, calculated on the basis of £5 10s. per oz., is £3,439,315, showing a decrease of £164,639 compared with the total for the longer month. (The latest quotation for gold received by cable from London is £5 14s. 6d.). The realisation charges have increased considerably owing to the banks raising their remittance rate from 8s. 9d. per cent. to £4 2s. 6d. per cent., or about 5s. per oz. The profits for February were adversely affected by the short month, the native labour strike and the extra costs due to increased pay to white employees requiring retrospective adjustments from November 1, 1919. It is understood that the back pay received by the miners in terms of the agreement with the Chamber of Mines amounted to something like £250,000. There has been a general improvement in the native labour position. The number of boys employed on the gold mines at the end of February was 185,185, as against 176,390 at the end of January, an increase of 8,795.

NATIVE LABOUR.

The native labour figures for the past three months are as follow:—

	Dec.	Jan.	Feb.
On gold mines	166,155	176,390	185,185
On coal mines	12,750	12,766	'12,708
On diamond mines ...	4,271	4,796	5,217
	183,176	193,952	203,110

COMPANY RETURNS.

WITWATERSRAND.

	Ozs.	Increase.	Decrease.
Aurora West	2,838	—	139
Bantjes	80	27	—
Brakpan	19,138	—	1,463
City and Suburban	3,280	—	1,411
City Deep	19,567	-	4,261
Con. Langlaagte	11,903	—	2,189
Con. Main Reef	13,805	—	2,153
Crown Mines	51,590	—	1,363
Durban Roodepoort Deep...	7,810	954	—
East Rand Proprietary ...	29,827	—	3,284
Ferreira Deep	10,763	37	—
Geduld Proprietary	15,172	—	1,176
Geldenhuis Deep	12,470	—	590
Government Areas	42,016	—	2,793
Jupiter	4,794	—	536
Knight Central	6,860	—	10
Knights Deep	16,469	1,358	—
Langlaagte Estate ...	7,516	—	1,926
Luipaardsvlei	3,733	214	—
Meyer and Charlton	7,918	—	541
Modder B.	21,260	—	4,811
Modder Deep	21,436	—	1,957
New Goch	2,676	—	357
New Heriot	3,178	4	—
New Kleinfontein	13,644	—	1,339
New Modder	42,338	486	—
New Primrose	3,417	—	136
New Unified	2,502	—	419
Nourse Mines	12,637	—	698
Princess Estate	4,367	—	596
Randfontein Central	35,039	—	5,369
Robinson	8,441	121	—
Robinson Deep	16,520	—	87
Roodepoort United	4,189	—	966
Rose Deep	12,490	55	—
Simmer Deep	10,150	519	—
Simmer and Jack	11,326	559	—
Springs	14,166	—	4,000
Van Ryn Deep	24,216	—	2,411
Van Ryn Estate	8,427	—	145
Village Deep	11,352	—	2,056
Village Main Reef ... ..:	4,687	—	505
West Rand Consolidated...	7,180	—	429
Wit. Deep	7,917	338	—
Witwatersrand	8,755	295	—
Wolhuter	8,334	—	47
Miscellaneous	1,884	—	—

OUTSIDE DISTRICTS.

	Ozs.	Increase.	Decrease.
Transvaal G.M. Estates ...	5,742	72	—
Glynn's Lydenburg	1,052	—	256
Sub Nigel	5,532	176	—
Barrett's	123	—	102
Miscellaneous	4,963	314	—

GROUP PROFITS.

	Dec.	Jan.	Feb.
Central Mining	£162,117	£478,259	£265,731
Barnato	129,204	290,567	174,380
Gold Fields	*21,083	41,991	55,458
General Mining	14,334	41,891	23,628
Mines Selection	35,835	79,004	53,866
Union Corporation	66,070	115,200	101,429
	£407,596	£1,046,912	£674,492

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.
TRADE MARK

HAS THE LOWEST CO-EFFICIENT OF FRICTION.

KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.

Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd., Johannesburg, Bulawayo and Salisbury.

THE FEBRUARY OUTPUT: GROUP RETURNS.

Central Mining/Rand Mines Group.

The following are the results of crushing operations of the Central Mining/Rand Mines companies for the month of February:—

Company.	Tons crushed.	Yield in Fine Gold Ozs.	Estimated Value.	Estimated Profit.	Estimated Working Costs per Ton.
City Deep	47,500	19,567	£106,619	£26,033	33/11
Cons. Main Reef	39,600	13,805	73,553	5,279	34/ 5
Crown Mines ...	170,000	51,494	275,056	60,220	25/ 3
Dur. Rood. Dp.	23,900	7,810	41,995	*1,637	36/ 6
East Rand Prop.	106,000	29,827	156,833	*13,542	32/ 1
Ferreira Deep ..	35,200	10,639	57,578	9,395	27/ 4
Geldenhuis Dp.	41,700	12,470	65,465	*4,632	33/ 7
Knight Central .	21,800	6,860	36,026	625	32/ 5
Modder B.	43,500	21,260	111,919	47,397	29/ 8
New Modder ...	86,400	42,338	225,953	122,440	23/11
Nourse Mines ...	34,700	12,637	69,049	1,536	38/10
Robinson	35,100	8,441	45,747	812	25/ 7
Rose Deep	49,600	12,490	65,573	5,992	24/ 0
Village M.R. ...	17,400	4,687	25,354	1,008	27/11
Wolhuter	29,700	8,208	50,334	10,163	27/ 0
Village Deep ...	33,500	11,352	59,928	*5,358	38/11
Tls. & averages	815,600	273,885	1,467,032	265,731	29/ 5

* Loss.

The gold output for the month is valued at £5 10s. per fine oz., less realisation charges. The latter show a large increase, owing to the Banks raising the exchange rate of gold proceeds from 8s. 9d. per cent. to £4⅛ per cent. There has been a general improvement in the native labour position, most mines showing larger numbers employed. In addition to two working days less for February, native strikes occurred on the following mines, occasioning loss of tonnage output and additional expense: City Deep, Consolidated Main Reef, Durban Roodepoort Deep, East Rand Proprietary Mines, Modderfontein B., Nourse Mines, and Village Deep. The following sums have been allowed for in the working costs for February in respect of retrospective adjustment of white wages made for three months ending 31st January: City Deep, £8,526; Consolidated Main Reef, £7,600; Crown Mines, £19,880; Durban Deep, £4,638; E.R.P.M., £18,000; Ferreira Deep, £5,060; Geldenhuis Deep, £7,154; Knight Central, £2,580; Modderfontein B., £6,000; New Modderfontein, £8,063; Nourse Mines, £5,948; Robinson, £4,806; Rose Deep, £5,117; Village Deep, £6,622; Village Main Reef, £2,514; Wolhuter, £2,700. The above is in accordance with the settlement made by the Chamber of Mines with the mine workers, and is additional to the offer made by the Chamber in December last, which latter was provided for in the working costs of December and January. The outlook for March is favourable.

Witwatersrand Deep.

The estimate of the results for the month of February, 1920, are as under: Tons milled, 30,200; gold recovered, 7,916·653 fine ozs.; average number of stamps running, 200; mill running time, 21·57 days; tube mills, 5; development footage, 474 ft. The working expenditure, including head office charges, for the month is £38,385, or 25s. 5d. per ton. The estimated working revenue, based on an estimate of £5 10s. per fine oz., is £43,467, or 28s. 9d. per ton. The estimated working profit is £5,082, or 3s. 4d. per ton. The estimate of £5 10s. per oz. is based on the estimate of the Transvaal Chamber of Mines. From time to time as account sales are received, the further premiums obtained from the sale of gold will be published for the information of shareholders.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits for the month of February of the undermentioned companies of the Consolidated Gold Fields group:—

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs	Total Profit
Simmer and Jack ...	320	7	46,100	11,326	£7,626
Robinson Deep	145	9	50,100	16,520	23,005
Knights Deep	400	11	88,700	16,469	12,631
Simmer Deep	220	10	45,500	10,150	4,245
Jupiter	80	5	21,000	4,794	*2,058
Sub Nigel	30	2	9,200	5,532	10,009
Totals	1,195	44	260,600	64,791	£55,458

* Loss.

Revenue derived from gold for the month of February is calculated at the rate of £5 10s. per fine oz. As from 1st February the monthly accounts reflect the full effect of the increased pay to employees. The retrospective balances due to employees in respect of the months November to January inclusive, less amounts already provided against them in the monthly accounts, will be charged out by the Knights Deep, Sub Nigel, and Simmer and Jack companies at the end of their current financial years respectively. The Simmer Deep, Jupiter, and Robinson Deep companies have charged their 1919 annual accounts in respect of the increased pay for November and December and will charge the January amount in their 1920 annual accounts.

Union Corporation.

Results of operations on the producing mines of this group for the month of February:—

Company	Stamps.	Tons Crushed.	Fine Ozs.	Total Revenue.	Revenue per ton.
Geduld Proprietary .	100	42,000	15,172	£82,838	39/ 5
Modder Deep Levels	70	39,600	21,436	115,505	58/ 4
Princess Estate ...	60	16,400	4,367	23,546	28/ 9
Totals	230	98,000	40,975	£221,889	—

Company.	Costs. Total.	Costs. Per Ton.	Profit. Total.	Profit. Per Ton
Geduld Proprietary ...	£49,141	23/ 5	£33,697	16/ 0
Modder Deep Levels ...	43,873	22/ 2	71,632	36/ 2
			£105,329	
Princess Estate	27,446	33/ 6	*3,900	4/ 9
Totals	£120,460	—	£101,429	—

* Loss.

The revenue derived from gold for the month has been calculated at £5 10s. per fine oz. The fine ounces recovered for the month of January, 1920, were: Geduld Proprietary, 16,647; Modder Deep Levels, 23,393; Princess Estate, 4,948; total, 44,988. The output of the Princess Estate was seriously affected owing to a strike of the natives, causing a complete stoppage for five days.

Glynn's Lydenburg.

The following are the particulars of the output of the Glynn's Lydenburg for the month of February:—Tons crushed, 2,894, yielding 1,052 fine ozs.; estimated value of month's output, £5,540; estimated profit for the month, £214. The gold output for the month is valued at £5 10s. per fine oz., less realisation charges; the latter show a large increase owing to the banks raising the exchange rate on gold proceeds. The costs for the month are increased owing to the additional expense in respect of retrospective adjustment of white wages in accordance with the settlement made by the Chamber of Mines with the mine workers.

Barnato Group.

The results of operations of the Barnato group for February are as follow :—

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlangle	100	32,300	£53,126
Government Areas ...	180	102 500	231,088
Langlaagte Estate ...	200	21,700	11,505
New Primrose ...	100	16,000	18,795
New Unified ...	60	8,900	13,760
Randfontein Central ..	600	127,500	192,711
Van Ryn Deep	90	16,900	133,187
Witwatersrand	215	32,750	18,154
Totals and averages ...	1545	391,550	£732,629
January totals	1545	415,750	£796,321

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings.	Gross Profit includ ing Sundry Revenue.
Consolidated Langlaagte ...	£17,257	29 261	£6,338
Government Areas	135,631	26·164	96,046
Langlaagte Estate	15,289	36·671	*3,660
New Primrose	18,350	22·938	518
New Unified	11,125	24·999	2,663
Randtontein Central	199,513	31·296	*5,952
Van Ryn Deep	63,439	27·053	70,340
Witwatersrand	11,602	25·406	8,087
Totals and averages ...	£562,206	28·717	£174,380
January totals	£510,131	22·888	£290,567

* Loss.

Monthly Gross Profit.—January, £290,567; February, £174,380.

The following sums are included in working costs on account of increased white wages: Consolidated Langlaagte, £5,800; Government Areas, £18,247; Langlaagte Estate, £5,797; New Primrose, £2,194; New Unified, £1,465; Randfontein Central, £29,770; Van Ryn Deep, £8,900; Witwatersrand, £7,000; total, £79,173.

Note.—Profits for February adversely affected by short month, native labour strike on Randfontein, New Unified, Consolidated Langlaagte, Langlaagte Estate, and extra costs due to increased pay to white employees requiring retrospective adjustments from 1st November last, as shown above. Revenue derived from gold calculated at the rate of £5 10s. per fine oz.

Transvaal G.M. Estates.

The following are the particulars of the output of the Transvaal G.M. Estates for the month of February:—Central Mines: Tons crushed, 12,600, yielding 3,960 fine ozs. Elandsdrift Mine: Tons crushed, 1,360 tons, yielding 1,102 fine ozs. Vaalhoek Mine: Tons crushed, 1,800, yielding 680 fine ozs. Estimated value of month's output, £30,543; estimated profit for the month, £1,926. The gold output for the month is valued at £5 10s. per fine oz., less realisation charges; the latter show a large increase owing to the banks raising the exchange rate on gold proceeds. The costs for the month are increased owing to additional expense in respect of retrospective adjustment of white wages in accordance with the settlement made by the Chamber of Mines with the mine workers.

JOHN L. SMITH, late of Oldham.—Your father and wife both dead.

Please communicate with J. P. HALL, "Gorse Bank," Oldham, England.

SOUTH AMERICA

HEAD OFFICE: MONTREAL, CANADA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE — Buenos Aires.
BRAZIL — Rio de Janeiro, Santos, Sao Paulo.
URUGUAY — Montevideo.
VENEZUELA — Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA — Barranquilla.
BR. GUIANA — Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON — Princes St., E.C.
PARIS — 28, Rue du Quatre-Septembre.
NEW YORK — 68, William St.
BARCELONA — Plaza de Cataluna 6.

THE ROYAL BANK OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - $500,000,000

STANDARD BANK OF SOUTH AFRICA. LTD.

SUBSCRIBED CAPITAL £6,250,000

PAID-UP CAPITAL £1,562,500

RESERVE FUND £2,200,000

Albu Group.

The following information is supplied regarding the February operations of the producing mines of the General Mining group:—

Company	Tons Crushed.	Cost.	Cost per Ton.	Total Revenue.	Profit.
Aurora West ...	11,900	£17,775	29·87	£15,592	*£2,183
Meyer & Charl.	11,900	16,885	28·38	43,391	26,506
New Goch ...	11,000	18,515	26·15	14,251	*4,261
Roodepoort Un.	18,600	26,390	28·38	23,167	*3,223
Van Ryn Est...	31,530	37,897	21·95	46,216	8,319
West Rand Cn.	25,730	41,107	31·95	39,580	*1,527
	116,660	£158,569	27·18	£182,197	£31,825
				Less losses	11,197
					£23,628

* Loss.

Working costs of all mines are abnormal due to provision being made for further allowances to employees recommended by the Chamber of Mines. In calculating the revenue, gold has been taken at a value of 110s. per fine oz., less estimated realisation charges. The results obtained from the Aurora West, New Goch, Roodepoort United and West Rand Consolidated are adversely affected by a strike of natives which took place during the month.

New Goch.—The working expenditure includes an amount of £2,813 expended on shaft sinking and development in the claims leased from the City Deep, Ltd.

Consolidated Mines Selection Group.

The following are the results of operations for the month of February:—

	Stamps Working.	Tons Milled.	Working Costs per Ton Milled
Brakpan Mines	110	43,000	32 6·557
Springs Mines	80	33,900	31 5·322
Totals and averages ...	190	76,900	32 0·724

	Value of Gold declared.	Yield per Ton.	Working Profit.	Working Profit per Ton.
Brakpan Mines ...	£80,463	37 5·094	£10,488	4 10·537
Springs Mines ...	59,757	35 3·061	6,460	3 9·739
Totals & averages	£140,220	36 5·618	£16,918	4 4·891

	Estimated Premium on output taking Gold at £5 10s. per fine oz.	Total Estimated Profit.
Brakpan Mines	£21,418	£31,906
Springs Mines	15,500	21,960
Totals and averages	£36,918	£53,866

Brakpan Mines.—Gold reserve unchanged, 3,724 fine ozs. Costs were adversely affected by the increase in wages granted to white employees. This increase has effect from the 1st November, 1919, and it is estimated that the additional amount chargeable to working costs for the three months to 31st January, 1920, is £7,366.

Springs Mines.—The breakdown of the waste rock hoist at No. 1 shaft, and the ore hoist at No. 2 shaft, seriously affected the yield and tonnage for the month. Costs were further adversely affected by the increase in wages granted to white employees. This increase has effect from the 1st November, 1919, and it is estimated that the additional amount chargeable to working costs for the three months to 31st January, 1920, is £1,889.

P.O. Box 3807.
ROCKWOOD PRESSED STEEL UNIONS
H. ALERS HANKEY - - - Sole Agent.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams: "THAINE."

OUR SPECIALITY!
(NOT TO BE BEATEN).

! MAGNETOS
F. HOPPERT.
MAGNETOS !

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:
Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

THE REPORT OF THE NITROGEN PRODUCTS COMMITTEE.

Problems of Supply and Manufacture—Points for South Africa—Recommendations Regarding Requirements of the British Empire.

The final report of the Nitrogen Products Committee, which has just been published, is a voluminous document of 137 pages, with some 200 pages more devoted to appendices and charts, and constitutes a comprehensive survey of the nitrogen problem both in the United Kingdom and in the Empire.

The Committee was appointed in June, 1916, as a Committee of the Advisory Panel of the Munitions Inventions Department, its duties being to consider the relative advantages for Great Britain and the Empire of the various methods for the fixation of atmospheric nitrogen for both war and peace purposes; to examine into the supply of the raw materials required (pure hydrogen and nitrogen), and the utilisation of the by-products obtained; to ascertain where and how the large supplies of cheap power necessary for the success of some of the processes can be obtained; to consider steps for conserving and increasing the national resources in nitrogen-bearing compounds, and for limiting their wastage; to carry out experimental work necessary to arrive at definite conclusions as to the practicability and efficiency of various processes; and as a result of the work to advise as to starting operations on a commercial scale. In order to carry out the task imposed on it, the Committee appointed a number of sub-committees, including one to report on methods and processes for the production of synthetic and non synthetic nitrogen; another, the Power and Gas-firing Sub-Committee to report on the prospects of obtaining electrical energy at a low cost for the operation of nitrogen fixation processes under British conditions; and another to supervise the practical investigations demanded by some of the newer processes for obtaining nitrogen compounds. A research section was at once organised, and secured the use of part of the new Ramsay Laboratory at University College, London, where in particular the synthesis of nitrogen and hydrogen into ammonia by the Haber method was investigated.

INTERIM REPORT.

In an interim report made in February, 1917, the Committee recommended the establishment of the calcium cyanamide process on a large scale, and of the ammonia oxidation process for obtaining nitric acid on a substantial scale, together with the erection of a full-size trial unit for testing the Haber process. For various reasons it was not considered practicable to erect a cyanamide factory. On the other hand, the engineers of the Explosives Department considered that the research work on the synthetic ammonia process had reached a stage which warranted the erection of a factory for making synthetic ammonia and ammonium nitrate, and as the outcome of an alternative proposal put forward by that Department in October, 1917, a start was made with a large factory at Billingham on the Tees, the construction of which, however, was not pushed forward with any vigour and has not been completed.

COMPARISON OF AVAILABLE PROCESSES.

One section of the final report deals in considerable detail with the features of the different nitrogen fixation processes in the light of British conditions and of the resources and requirements of the country.

The broad conclusion is reached that the are process, though the most direct method of obtaining synthetic nitric acid, is handicapped by large power requirements, by low electro-chemical efficiency, and by the extensive and costly character of the chemical plant necessary. Nevertheless, it is considered that the process would stand to advantage as compared with the retort (Chile nitrate) process so long as the cost of energy was below £9 per kw. year.

CYANAMIDE PROCESS.

With electrical energy costing not more than £5 per kw. year the calcium cyanamide process yields a cheaper marketable form of combined nitrogen than any other established fixation process, and is the only process of the kind giving a solid nitrogenous fertilizer as a primary product. It is very adaptable, involving the manufacture of calcium carbide as an intermediate product, and providing a ready, though indirect, method of obtaining a comparatively cheap synthetic ammonia. Calcium cyanamide also constitutes a raw material for the manufacture of crude cyanides and of organic products, such as nitrate of urea, of growing importance. There is no reason why its manufacture, and that of calcium carbide, should not be successful in this country if laid out on a large scale, because the higher cost of electrical energy, though an importnat factor from the point of view of foreign competition, is to a large extent offset by other favourable factors, such as cheap and abundant raw materials and the elimination of oversea freights. A steam power station of 30,000 kw. maximum load in the minimum size that would be justifiable for the economical operation of the process under British conditions.

SYNTHETIC AMMONIA.

The Haber process is regarded by the Committee as specially suitable for British conditions. Its economics are chiefly governed by the cost of the gases, particularly that of hydrogen of the requisite purity, and by the capital cost of the catalyst or high pressure section of the plant and its cost of maintenance. Every increase or reduction of 6d. per 1,000 cu. ft. in the cost of hydrogen affects the cost of the synthetic ammonia to the extent of over £9 per metric ton. The Committee has come to the conclusion that is should be possible, by the water-gas catalytic process, to make this gas on a large scale of the necessary purity at a cost of 2s. 6d. per 1,000 delivered under compression to the catalyst section of the ammonia plant. The hydrogen used in the synthesis of a metric ton of ammonia would then represent a charge of about £9 6s. by far the largest item in the production costs. The nitrogen would cost only about 13s. The capital cost of the catalyser section of the plant depends to an important extent upon the space-time-yield of commercially practicable high pressure units, *e.i.* upon the output per unit of catalyst space, since this factor governs the number of units required for a given production.

With a space-time yield of the order definitely shown by the research work to be attainable, the total capital outlay for a synthetic ammonia factory, inclusive of hydrogen and nitrogen sections, would probably be about £48 per metric ton of combined nitrogen per annum, the hydrogen section with compressors and buildings being estimated to account for nearly half the outlay. Given a method of making pure hydrogen at a cost of not more than 2s. 6d. per 1,000, there seems no doubt that the Haber process is capable of producing pure ammonia at a cost, at the factory, of about £17 or less per metric ton, equivalent to about £20 per metric ton of fixed nitrogen, which is below that of any existing ammonia process. The cost of maintenance of the catalyst is an uncertain item in this figure, since it cannot be ascertained accurately except by the experience of several years, working, but the Committee thinks that an allowance of 10 per cent. on its capital cost should be a reasonably safe maximum for repairs. The conversion of the ammonia into sulphate, including packing, increases the total factory cost to about £29 per metric ton of fixed nitrogen, equivalent to about £6 per metric ton of ammonium sulphate, which shows a very substantial margin as compared with the pre-war market price of the product, £13 6s. per metric ton.

The facility with which oxygen and the rare gases of the atmosphere (argon, neon, and helium) can be obtained as by-products in the manufacture of cyanamide and synthetic ammonia is an asset in favour of these processes for British conditions, because several important industries would derive advantages from the marketing of additional supplies of these gases at reasonable prices, though the relative merits of the processes would probably not be affected by the prices obtainable for the by-products. The maximum use should be made of the by-products from all liquid-air nitrogen plants installed for nitrogen fixation purposes in the United Kingdom, and in the opinion of the committee the imposition of restrictive trade agreements preventing the recovery and utilization of by-product oxygen from nitrogen plants should not be permitted.

AMMONIA OXIDATION.

A method of obtaining nitric and nitrate nitrogen is provided by the ammonia oxidation process. As compared with the types of converter originally employed, recent developments in platinum gauze converters show a marked simplification in construction, with reduction in the quantity of platinum required, and a large increase in the output per unit of plant, from about 30 to as much as 300 metric tons of HNO_3 (calculated as 100 per cent.) per annum. After a preliminary investigation of variuos metallic and non-metallic catalysts, a thorough study was made of the behaviour of different designs of converters constructed of aluminium, platinum catalyst in the form of wire net being employed. The relative efficiencies of converters with single, double, and multiple nets were determined, and the effects of preheating the gases and of varying the ratio of air to ammonia as well as the gas velocity were studied. Comparisons were also made between converters with electrically heated nets and converters in which the temperature of the net was automatically maintained by the heat evolved in the process of oxidation. It was

SALISBURY, RHODESIA.

WIGG & JENKINS,

MINING, LAND, AND COMMERCIAL
AGENTS AND BROKERS.

Gold and Base Metal Properties
FOR SALE AND WANTED.

Correspondence invited.

P.O. Box 118 Telegrams : 'WIGG."

established that the optimum yield of oxides of nitrogen was obtained when using two or more nets, and that, contrary to some published statements, a distinctly higher conversion efficiency would be obtained at rapid rates of gas flow when the net was electrically heated. Eventually double-net converters of simple design and of different sizes were evolved in which, in favourable circumstances, the oxidation efficiency—*i.e.*, the ratio of the output of fixed nitrogen, oxides of nitrogen to the input of ammonia nitrogen, approached 98 per cent., and the mean efficiency under various conditions and during continuous runs exceeded 90 per cent. At the maximum rate of gas flow the yield was very high, amounting to 1.5 metric tons of nitric acid (calculated as 100 per cent.) per sq. ft. of double net per 24 hours, which is much in excess of the output of the old Ostwald converter.

The committee considers that the capital outlay for a large scale plant, exclusive of the ammonia-producing section, for making concentrated nitric acid (93-96 per cent.) would amount to about £8 per metric ton of H N O (calculated as 10 per cent). per annum, and the working costs should not exceed £2 and £4 5s. per metric ton for diluted and concentrated acid respectively. It is important to note that the cost of converting a pure strong ammonia into concentrated nitric acid, for which the peace time demand is relatively small, is substantially higher than the cost of converting it into ammonium sulphate, for which there is a very large market, the respective figures being about £20 and £8 6s. per metric ton of combined nitrogen.

Ammonia oxidation converters of simple design are particularly well adapted for supplying the oxides of nitrogen required in the manufacture of sulphuric acid by the lead chamber process. They are much more readily controlled than the usual nitric pots, which in general are wasteful of combined nitrogen, and in the opinion of the committee should be used throughout the sulphuric acid industry independent of supplies of Chile nitrate.

RECOMMENDATIONS.

As a minimum provision for safeguarding the future and meeting a portion of the growing home demand for various nitrogen products the Committee recommends the following measures :—

(1) The establishment, either by private enterprise, supported if necessary, by the Government, or as a public work, of the caynamide process on a scale sufficient to give about 60,000 tons of cyanamide annually, equivalent on the basis of combined nitrogen to about one-eighth of the present home production of ammonium sulphate. The necessary electrical energy should be obtained either from water power in Scotland (where there are several sites where the necessary power could be developed at reasonable cost), or from a large steam-power station, perhaps one of the proposed superstations. On the basis of pre-war prices plus 50 per cent. the approximate capital outlay at a water power site would be £1,680,000 inclusive of the hydro-electric development taken at £53 6s. per kw. of maximum demand. A factory erected at the site of a large steam-power station would entail a capital outlay of about £800,000 inclusive of the proportionate cost of the power plant. The chemical section for either site would cost about £415,000 of the above totals.

(2) The establishment forthwith on a commercial unit scale of the synthetic ammonia process, and its extension as rapidly as possible as a post-war measure, up to minimum manufacturing scale of 10,000 tons of ammonium per annum, equivalent to 40,000 tons of ammonium sulphate. If practicable the Billingham factory should be utilized. On the basis of pre-war prices plus 50 per cent. the outlay for such a factory would probably amount to £600,000 if ammonia were the end product, and to £780,000 if the factory were laid out for the manufacture of synthetic ammonium sulphate.

(3) In conjunction with this factory an ammonia oxidation plant should be completed, as was originally contemplated by the Government, on a scale sufficient to produce annually about 10,000 tons of strong nitric acid (95 per cent.) or its equivalent in nitrates, and the plant should be designed to utilize either synthetic or by-product ammonia, because the national interests demand that adequate experience in the production of nitric acid from ammonia from all sources should be available in this country. The capital outlay for such a factory is estimated at £120,000.

IMPERIAL ASSETS.

In addition to recommending that the researches on the nitrogen problem initiated during the War should be continued under Government auspices after the War, and that the results should be published, the Committee advocates that a co-ordinated policy should be framed, by an Imperial authority, for safeguarding the future nitrogen requirements of the Empire. It urges that Imperial preparedness for defence will be one of the vital peace problems, and it points out that notwithstanding maritime supremacy the military situation has been fundamentally changed, now that it is commercially practicable to manufacture essential nitrogen products synthetically, and that the risk attaching the dependence on Chilean nitrate cannot be afforded. It would probably be wise to concentrate the major portion of the nucleus defensive installations in the United Kingdom, but supplementary installations in other parts of the Empire would be essential, because no portion should be dependent entirely on external supplies in case of war.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

BITUMEN
SOLUTION
(COURTNEY'S)

A perfect rust-proof coating for smoke stacks, tanks, pipe lines, iron roofs, etc.

¶ Much superior to paint and costs less. Does not crack, blister or peel off, and is quite unaffected by heat, cold, moisture or acid fumes; possesses great tenacity and elasticity, and is absolutely non-porous.

A descriptive folder showing other advantages, gladly furnished on request.

GEORGE ANGUS & CO., LTD.
(Incorporated in England.)
Box 3942. JOHANNESBURG. 'Phone 1031.

THE WEEK IN THE SHAREMARKET.

An Election Week—Prices Easier on Labour and National Wins—Gold Premium Lower.

Prices have fallen off all round this week owing to the Labour and Nationalist successes at the elections, and to the news of a fall in the gold premium. The January output returns make more clear than ever the all-importance of the gold premium, and the fact that the news of its fall came simultaneously with the announcement of the output naturally affected prices. The effect of the Labour victories was very apparent on Thursday morning on all gold shares. New Modders were 1s. 6d. lower at 80s. 9d. and 80s. 6d., Modder Deeps 3d. at 54s., Gedulds 6d. at 52s. 6d., Modder Easts the turn at 26s. 9d., 26s. 6d., and 26s. 7½d., the Debs. 20s. at £132 sellers; Kleinfonteins 6d. at 13s. 6d. and 13s. 3d., Sub-Nigels 6d. at 17s. 3d. and 17s., Springs 6d. at 55s. 6d. and 55s. 3d., and Van Ryn Deeps 1s. at 98s., etc. State Mines and Modder B's were unchanged, West Springs steadier at 21s. sales, and Victory Monarchs 1s. higher at 61s. bid.

As regards tins, Leeuwpoorts were again dealt in at 31s. 9d., but Rooibergs at 11s. 6d. and Zaaiplaats at 11s. 3d. were both 3d. lower. In diamonds, Crown Diamonds were 3d. higher at 13s., Franch Smiths steady at 9s., Rouxvilles 9d. higher at 25s., and Roberts Victors firm at 19s. sales ex London. Pretoria Cements were firm at 99s. 6d. sales, Hume Pipes 9d. higher at 25s. and 24s. 9d. sales, and S.A. Alkalis inactive. Transvaal Silvers were easier at 52s. 6d., and the Options 1s. lower at 33s. 6d. and 35s. sales. Union Loans were passed without business. Greig Diamonds have again provided the sensation of the week, ending at 52s. 6d. on Thursday. Basuto Diamonds were active, and Victory Diamonds fluctuated about 3s. The final results of the elections are not in at the time of writing, and the outlook, therefore, remains uncertain. If General Smuts can get a clear working majority all will be well, but the issue is in doubt.

	Fri. 5th.	Sat. 6th.	Mon. 8th.	Tues. 9th.	Wed. 10th.	Thurs. 11th.
Anglo-Am. Corp. . .	52 0	51 6	50 0	50 3	50 6†	50 6†
Apex Mines	7 0*	7 0*	7 1*	7 0*	7 0*	7 0*
Aurora Wests . . .	6 9*	—	6 3*	—	6 0*	—
Bantjes Cons.	4 4	4 2*	4 2	4 1*	4 1*	4 1*
Blaauwbosch Dmds. .	—	—	—	—	—	90 0†
Brakpan Mines . . .	72 0*	72 0*	72 6*	70 0*	72 6*	72 6*
Breyten Collieries . .	—	—	—	8 0*	—	—
Brick and Potteries .	—	4 0*	—	4 0*	4 0*	4 6*
Bushveld Tins . . .	1 9*	1 9	1 11	2 0	1 9*	2 0†
Cinderella Cons. . .	6 6*	7 0	—	—	6 6*	—
City and Subs.. . . .	7 3†	7 3†	6 6*	7 0†	7 0†	—
City Deeps	57 6†	60 0*	60 0*	61 6†	60 0*	60 0*
Clydesdale Colls. . . .	25 0*	25 0*	25 0*	—	24 0*	—
Con. Langlaagtes .	24 0*	—	—	—	—	—
Con. Main Reefs . . .	16 0	15 9*	15 9*	16 3a	15 9†	15 6
Con. Mines Selection	31 0	31 0*	31 0	32 0	32 0*	—
Coronation Colls. . .	—	—	67 6†	—	67 6†	—
Coronation Freeholds.	2 3	2 2	2 2*	2 3†	2 0*	2 0*
Coronation Syndicates	16 0	—	17 6†	17 6†	—	17 6†
Crown Diamonds . .	12 9	12 6	12 6	13 0	12 9	13 0
Crown Mines	—	—	75 0*	78 0*	78 0*	78 0*
Crown Mines Debs. .	—	—	—	£97†	£97*	—
Daggafontein Mines .	18 0*	18 0	17 9*	18 0	18 6*	17 6*
Do. Opts. (5 yrs.) .	4 0	4 0	4 0	3 6*	3 9	3 0*
Durban Rood. Deeps	10 0†	—	10 0†	—	—	—
East Rand Coals . .	2 4*	2 3*	2 4*	2 3*	2 5	2 5*
East Rand Deeps . .	1 2*	1 3*	—	1 5	—	1 2*
East Rand Props. . .	13 9*	13 6	13 3*	13 3	12 6*	13 0
East Rand Debs. . .	£70*	—	£70*	£70*	—	—
Eastern Golds	1 4*	1 4*	1 3	1 4*	1 4*	1 4*
Ferreira Deeps . .	12 6†	—	—	12 6†	12 6†	12 6†
Frank Smith Dmds.	10 1	9 9	9 7	9 3	9 0	9 0
Geduld Props. . . .	55 0*	55 0a	54 0a	53 6	52 6a	52 6
Glencairns	—	5 0*	—	—	—	—
Glencoe Collieries .	5 0*	—	5 0*	5 0*	5 0*	—
Hume Pipes	22 6*	23 6	22 6*	23 3	24 0	24 9
Glynn's Lydenburgs.	18 6†	—	17 0*	—	17 0*	18 0
Govt. Areas	96 6	96 6	96 0	96 0	95 6	95 6

*Buyers. †Sellers. AOdd lots. BEx London.

	Fri. 5th.	Sat. 6th.	Mon. 8th.	Tues. 9th.	Wed. 10th.	Thurs. 11th.
Jhb. Bd. of Ex. . . .	35 0*	35 0*	35 0*	35 0*	35 0*	35 0*
Jupiters		6 0*	6 0*	6 0*	6 0*	5 9*
Kaalfontein Dmds. .	1 0*	0 9	1 0	0 10	0 10	0 10
Klerksdorp Props. . .	—	—		—	2 1*	—
Knight Centrals . .	7 0*	7 2	7 1*	6 9*	7 0*	6 10*
Knights Deeps . . .	—	—	8 0*	—	—	—
Lace Props.	15 0*	16 6†	—	16 0a	—	—
Leeuwpoort Tins . . .	33 0	32 6	33 6	31 6	31 9	31 9
Lydenburg Farms . .	7 8*	7 8*	7 6*	7 8	7 6	7 8†
Meyer and Charltons .	100 0*	100 0	—	100 0*	—	100 0*
Middelvlei Est . . .	2 2†	2 2†	2 2†	2 0†	2 2†	2 2†
Modder B.'s	150 0*	150 0*	148 0*	150 0*	150 0*	150 0*
Modder Deeps	54 6	54 9	54 9	54 6	54 3	54 0
Natal Navig. Cols .	—	24 0*	—	24 0*	—	
Modder Easts	27 9	27 6	27 3*	27 0	26 9	26 7½
Do. Opts. (3 yrs.) .	7 0	6 9a	6 9	6 3*	6 4½	6 4
Do. Opts. (4 yrs.) .	11 6	11 3	11 0*	10 9	10 9	10 6*
Natal Navig. Colls. .	—	24 0*	—	24 0*	—	—
National Banks . . .	290 0†	290 0†	—	285 0†	290 0†	—
New Boksburgs . . .	—	2 1*	2 0*	2 0*	—	2 0*
New Eland Diamonds	75 0*	82 6†	75 0*	76 0*	78 6*	77 6*
New Era Cons. . . .	10 0a	11 0a	10 6*	10 6	10 3	10 0*
New Geduld Deeps .	2 4*	2 4*	2 5†	2 4*	2 5	—
New Kleinfonteins . .	14 0*	14 9	14 6	14 3	—	13 3
New Modders.	83 0	83 6	83 0*	82 0*	82 0b	80 6
Nigels	9 6*	9 6*	9 6*	9 6*	9 6*	—
Nourse Mines	16 0†	—	—	—	14 0*	14 0*
New States	30 3	30 0b	29 0a	29 3	28 9*	20 0
Pretoria Cements . .	93 9*	98 6*	—	99 6a	99 0*	99 6
Princess Estates . . .	2 7*	—	2 8*	2 3*	2 6	2 6*
Rand Collieries	—	—	—	—	3 0*	—
Rand Nucleus . .	2 0*	—	2 0*	2 3*	—	—
Rand Select. Corp. .	104 0	106 0	103 0*	103 6	102 0	—
Randfontein Deeps .	6 9	6 9*	6 6*	6 6*	6 6*	7 0*
Randfontein Estates .	26 0	25 9*	26 0*	26 0	25 3	—
Roberts Victors . . .	16 0*	19 0	18 6	18 6	18 6	19 0b
Rooibergs	12 0	11 6*	12 0	11 0	11 9	11 6
Roodepoort Uniteds. .	—	—	—	—	6 0†	5 6†
Ryan Nigels	3 6	—	—	—	3 6*	—
Rouxvilles	24 6	24 6*	24 6	25 6a	24 3	25 0
Shebas	2 9*	2 9*	—	3 0*	3 1*	—
Simmer Deeps	3 6	3 6*	3 6	3 6†	3 3	3 6
S.A. Lands	6 1*	6 3	6 2*	6 1*	6 3	6 3*
Springs Mines	56 3	56 0*	56 0a	55 3*	55 6	55 3
Sub-Nigels	17 9	17 9	17 6*	17 6*	17 0*	17 0
Swaziland Tins . . .	16 0*	16 0*	15 6*	16 9†	16 6†	16 6†
South Van Ryns . .	8 9	8 9	9 0	9 0	8 11	9 0*
S.A. Townships . . .	15 0	14 9*	15 0*	15 0*	15 0	—
S.A. Alkali	21 0*	21 0*	22 6	23 0	23 6	23 0*
Transvaal Silver . . .	55 0†	52 0	53 0a	53 6	—	52 6
Do. Options	35 0	33 0*	35 0	34 6a	—	33 0
Transvaal G.M. Est.	16 6*	16 6	—	17 0†	—	17 0†
Tudors	—	1 6*	—	—	—	—
Tweefontein Colls. . .	—	25 0†	25 0†	—	25 0†	25 0†
Union 5 per cent . .	£102*	£102*	£102*	£101¾†	£102	£101½
Victory Monarchs . .	60 0*	—	60 0*	60 0*	60 0*	61 0*
Van Ryn Deeps . . .	100 0	99 6	100 0	99 0*	99 0	98 0
Villag Deeps	16 6†	16 0*	16 0*	—	16 6†	—
Village Main Reefs .	—	10 0†	—	—	—	—
Van Dyks	4 6*	4 0	3 9*	4 0	4 0†	3 6*
Welgedachts	—	31 0†	32 0†	—	32 0†	—
West Rand Cons. .	8 0†	8 0†	7 0*	7 0*	8 0†	7 6†
Western Rand Est. .	7 0*	7 0	7 3*	7 3*	7 4½	—
Witwatersrands	20 0†	20 0†	19 0*	18 0*	20 0†	18 0*
Wit. Deeps	12 0*	13 0	13 0*	13 0*	12 0*	11 0a
Wolhuters	6 1*	6 4*	6 6	6 7	6 8	6 6
West Springs	21 3	21 6	21 6	20 6	20 6*	21 0
Do. Options	4 9*	5 0	5 0	5 0	5 0	5 0*
Zaaiplaats Tins	11 9	11 6	11 9*	11 9	11 6	11 3

*Buyers. †Sellers. AEx London. BOdd lots.

Rooiberg Minerals.

Appended are details of the operations on this company's property for the month of February :—Ore mined, 1,521 tons; total ore accumulated for crushing at a later date, 12,656 tons; tons treated, ore 2,769 tons, slime nil, sand nil; concentrates produced, 15 tons; expenditure, including realisation charges and exploration, £5,809; revenue (less adjustments on previous shipments, £27), £11,904.

New Patents.

James Ellwood Jones, Norton Anderson Newdick and William Edgar Moody.—Improvements in and relating to machines for gathering and loading coal and other materials.

Frank Hewitt.—Improvements in guide rollers for wire ropes.

The New Jersey Zinc Company.—Manufacture of zinc oxide.

The New Jersey Zinc Company.—Production of metal oxides and other compound of metals.

Arthur Redman Wilfley.—Improvements in centrifugal pumps.

Arthur Charles Anden.—Improvements in the method of extracting potash from potash bearing minerals, and the manufacture of the residual products of such methods of conversion into cement.

James William Monahan.—Improvements in steam traps.

Herbert Raine Bray and Henry Alexander Stenning.—Improvements in and relating to apparatus for connecting tubs to plates, headers or the like.

Archie Hall Jones.—Improvements in ore separating device.

Samuel Edwin Walton.—Improvements in and relating to exhaust silencer for internal combustion engines.

John Frederick Wells.—Improvements in and relating to gas producers.

John Frederick Wells.—Improvements in connection with a process and apparatus for carbonising wood and other carbonaceous material.

John Wells.—Improvements in the extractors and scrubbers for gas.

Harry Llewellyn Boyer.—Improvements in storage battery separators.

Leigh James Stephenson.—Improvements in dynamo-electric machinery.

Thomas Gordon and Hugh William Bridge.—Improvements in rock drills.

Marie Olive Cranton.—Improvements in reinforced concrete for the manufacture of chill-proof cubicle Kafir beds in mine and other compounds.

Carl Cronow.—Improvements in and relating to diamond washing machines.

Linden Wallace Bates.—Improvements in fuel.

John Joseph Atmore.—An improved torch for lighting fuses for blasting and the like.

Claude Hamerton Rowe.—Improvements relating to the valves of automobile engines and the like.

Robert Elgin.—Pressed springs for sliding box frames and sashes, most suitable for solid frames.

Samuel Scott Wilson.—Improvements in the manufacture of asbestos and similar tiles, sheets and the like.

A New Shale Distillation Process.

Colorado's oil shale industry is expected to benefit from the application of the Wallace process of distillation. A standardised gas retort is used with a device for the application of heat which insures perfect control of the temperature throughout. This heat, which comes from the combustion of the fuel oil resulting from destructive distillation of shale, is applied on the outer walls of the retort, a temperature of 1,100 degrees Fahrenheit having been found after long experimentation to be best suited for the purpose. In the centre of this retort is a perforated core, or collection chamber, around which the raw shale is poured from an overhead charging hopper. Between this core and the inner wall of the retort is a space of four inches, and it is this space which is filled with the raw shale, this thickness of shale having been found to insure the most complete decomposition of the shale by the applied heat. The resulting liquids and gases are drawn from the decomposing shale, through that part of the charge which has not yet been reached directly by the heat, into the core and out through the bottom by a pump, whence they pass through a system of condensers and finally come out in the form of crude oil and ammonia. Only primary distillation is permitted, otherwise the vapours which carry oil would be converted into fixed gases from which there could be no recovery of oil or other valuable material. The inventor claims that through the absolute control of the heat it is possible to recover a greater proportion of the oil contained in the shales and to retain in these oils properties which would be destroyed by the application of higher temperatures.

HADFIELDS Ltd.
East Hecla and Hecla Works, Sheffield, England.

Workmen employed during the war, over 15,000.
Works area 200 Acres.

HADFIELD'S SPECIAL FORGED STEEL
BALLS FOR BALL AND TUBE MILLS

MINING REQUISITES
of all kinds.

ERA
Trade Mark

Sole Makers of HADFIELD'S PATENT
MANGANESE STEEL
The supreme material for the wearing parts of Stone Breaking and Ore Crushing Machinery, Tramway Track Work, etc.

Complete Stone Breaking and Ore Crushing Plants

Head Office for South Africa:
46 & 47, CULLINAN BUILDINGS,
JOHANNESBURG.
'Phone 5900. Tel. Add.: "Hecla."

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

Natal Agents:
THOMAS BARLOW & SONS (S.A.) Limited.
Smith Street, Durban.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Mines to Supply Natives with Essentials—Strikes and Exchanges—Iron, Steel and Hardware—Electrical Goods—Timber and Building Materials.

The bombshell of the week was the rumour that the mines were contemplating a scheme to supply certain articles of clothing to the natives in the compounds. This is not surprising, as the native unrest is a serious factor, and it will be remembered that the mine traders and the natives have been somewhat at loggerheads for several years, as one often learns of boycotts and so forth. At the moment the mine traders may not be over much to blame, as new stocks, when replaced at the present high costs, are difficult to handle so as to give anything like satisfaction to the natives, who are keen buyers. However, there has been a wide unrest amongst the natives, because they also have been caught in the flood tide of high prices. The crux of the matter, so far as they are chiefly concerned, is that where they had been in the habit of sending, say, £2 to their wives and families at the kraal, they now only send £1. Notwithstanding, mark you, that they hear and know everyone connected with the mines have got very substantial rises simply because of the agitators. Hence the strikes of some 40,000 natives at one time, and these cannot be allayed simply because things seem pretty well normal again. Who knows this better than the Chamber of Mines! And it would be the height of folly and stupidity for that responsible body to sit with arms folded and do nothing, as it goes without saying that a lot of nice things were promised to the natives to woo them back to work again without undue trouble. This certainly happened, and no one can complain about the nice promises, as on several occasions things looked a bit ugly. In addition to these promises the Chamber is seemingly acting and intend giving the natives a fairer deal than they have had, certainly during the latter part of the War period. It does not matter who is to blame and who is not to blame, the fact remains that something has to be done to placate the natives, as their churches and their newspapers, chiefly edited by University natives, have a lot to say, and it is all readily taken in by often unbalanced minds. Trade jealousy is a very noxious weed, and the Chamber of Mines has no easy task to steer its ship through all the eddies. In this respect a few words in reference to the selling of boots to natives by the mines may be a steadier towards sanity. It was found that a native wearing boots was equal to two not being equipped with such a protection against the broken rock. Hence the mines eventually decided to supply the natives with boots. These were purchased by calling for tenders in the open market; but the Reef traders, naturally took the question into the Courts and at last the Supreme Court decided that the mines were within their rights in supplying the boots, providing they did not trade, which was decided on the basis that no profit must be made by the mines. In fact, according to one authority the mines are losing 2½ per cent. on all the boots handled by their storekeepers. An argument brought forward was that the mines had been supplying their (white) contractors with dynamite at cost price for many years. Even with all this the natives need not purchase boots from the mines, but can do so from any storekeeper. It practically goes without saying they prefer the mine storekeeper to deal with, but they must have boots to protect their feet when at work. We hope the question has been put fairly and it is pretty certain that with all the blaze of publicity in the newspapers, and at the various assemblages of speakers on such a sore subject, a good compromise may be made, as the world is full of compromises.

STRIKES AND EXCHANGES.

Another outstanding feature is that the American Exchange is relegated to the background as the South African Banks are now following very much in the wake of the American Banks. Their buying rate in Johannesburg on London is 6 per cent. for all exports, such as asbestos, wool, gold shares, in fact everything that is dealt in through the term drafts. Their selling rate is certainly good, as it is from 4 per cent. upwards; that is to say, if one had £100 to send to London the Banks would give a premium of £4, and for £500, 4¼ per cent. This also applies to sending the raw gold, as that is placed in the same category as asbestos or other South African products.

These extraordinarily high rates for South Africa are causing consternation in commercial circles, but relief is expected when the new Parliament meets; in fact the Parliamentary elections are causing all the important things of life to sink into a matter of insignificance for the time being. However, as the elections will be over when these notes appear, it is only reasonable to anticipate the Advisory Committee to assist the Government in proposing some scheme for relief of our exchanges, seeing that we are a creditor country, which is quite the exception in these days of big imports and small exports by all the European Powers. Another disturbing feature is the strike of engineers and ironfounders, which is being conducted so quietly so far, and neither the employees nor the employers have come to grips, which obviously is essential before a settlement can be arranged. Unfortunately the short hours question is a nut that requires a lot of cracking.

IRON, STEEL AND HARDWARE.

The iron and steel business is very quiet, indeed, now that the town engineering shops are idle owing to the strike of the engineers and moulders. The price of Vereeniging steel is 36s. 6d., and Dunswart iron 30s. per 100 lbs. Imported iron and steel is 50s. per quarter in rounds; 42/6, three-eights and ½in., 38s. 6d., with big sizes at 37s. 6d. The new stocks coming forward cannot be sold under 50s. The general business for bar iron and steel is much the same from all parts of the Union. It will be seen from Mr. Maurice Brown's advertisement that he has commenced to receive the large quantity of hardware material that he bought from the Minister of Munitions in London. Steel plates, particularly in some thicknesses, are very scarce and the smaller sizes go as high as 50s. per 100 lbs.; the other sizes are about 45s.. It is said that English manufacturers are quoting for steel plates, with guaranteed deliveries. Quarter inch round steel, when obtainable, goes as high as 70s. Shovels are very scarce at 65s. to 70s. a dozen. Wheelbarrows are also scarce at 75s. each. Wire nails at 52s. 6d. to 55s., for small sizes, and 60s. for big sizes. The oversea market reports are to the effect that prices have a rising tendency, not so much on account of the ruling exchanges, but more in relation to manufacturing costs. The hardware business on the Commercial Exchange is quite fair, but many prices are very much cut when tendering for the buyers' requirements placed on the board. This is hardly understandable, as quotations are often below the cost of replacement in Johannesburg. All cables and letters indicate the tendency to increased prices, both in England and America, but for some reason or other the mine buyers anticipate, in the near future, a drop in prices being had by cheaper shipping freights. As regards outside business, the demand is quite good for the Belgian Congo, Rhodesia and railways, as well as all the alluvial diamonds fields in the Bloemhof and Kimberley districts.

'Phone 4673. Box 3162.

FORGED STEEL
SHOES AND DIES
MANUFACTURED BY
The Old Park Forge, Ltd.,
SHEFFIELD.

Sole Agents:
SAMUEL OSBORN (South Africa) Ltd., SHEFFIELD and JOHANNESBURG.

ELECTRICAL GOODS.

Materials are coming in from Home gradually, but tubing and wiring are expected to be very scare by the end of the present month. Wire has gone up 50 per cent. during the past fortnight, whilst lamps have remained much about the same. Ceiling roses and adaptors are still almost out of stock, but one prominent dealer is expecting some 20,000 to 25,000 of the former at an early date. It is an illuminating fact that the price of ceiling roses is now nominally about 5s. as against od. some months ago. This price is, however, expected to go down to 1s. after expected arrivals. Town and country business is fairly brisk, subject to shortage of certain stocks. As a general statement dealers are unanimous that the tendency of prices all round is to increase. Dealings on the Exchange, up to now, in March, have been fair, but marked by a certain cautiousness, in view of imminent things to arrive.

TIMBER AND BUILDING MATERIALS.

Business is excellent in the building line. There seems a little dullness in the property market, although on Tuesday, at a weekly sale, thirteen properties were put up and eight of them sold at very fair prices. This was rather a surprise to the auctioneer, who thought that as it was on the eve of the elections the sale would be indifferent, but that was not so. There is a shortage of 9 x 3 solid deals, which realised about 2s. a foot, according to length. Floorings, 9¾d. to 10¼d., and ceilings 7d. to 7½d.; roofing iron, 1s. 6½d. to 1s. 8½d. There are quite fair stocks of enamel bath and sanitary ware, as well as all kinds of builders' hardware goods. The oil and colour trade is getting bad, chiefly because of the scarcity of turpentine, which has become acute. The nominal price here is from 170s. to 180s. for 2-4's. The monthly list of a leading firm of distributors simply says small bottles of turps at 2s. 6d. each, without any other quotation. It is said that the British buyers have mostly cleared out New York stocks before the holders became aware of the true position of affairs. Therefore stocks in Great Britain can be had cheaper than in America, which position will right itself when the new crops come in. White lead, 105s. per 100 lbs. and 1s. to 1s. 3d. lb.: Linseed oil, raw and boiled, 14s. per 7 lb. tin. Another acute shortage is in plate-glass; the nominal quotation is 7s. 6d. per square foot, but it is practically out of the question to obtain anything like the quantity; in fact, some stores are absolutely bare. Sheet glass is also very scare, and what is available is chiefly composed of small sizes. Fancy glass is comparatively plentiful at 2s. 6d. per foot. Bricks are as difficult to get as ever, especially for anything like immediate delivery, as new orders cannot be executed for two or three months. A firm from Kempton Park states that pressed bricks have been raised to 105s. for first quality, and 100s. for second quality, f.o.r. Kempton Park, making it about £7 9s. per 1,000 for delivery on a job in Johannesburg within the two miles radius.

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7in.)

COULD PRODUCE

Rounds and Squares (to 6in.). Channels, Joists, Tees, Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826
Tel. Address: "MAUBROWN," Johannesburg.

AFTER THE ELECTIONS.

There were a few surprises and individual disappointments on the 10th inst. However, there were sufficient votes cast to show the country is sound on Constitutionalism, which is the keystone to commercial peace and prosperity. The exchange cables show that America has improved by 1s., viz.: the British pound sterling is now raised from 14s. to 15s., on the strength of Britain and France paying off its American loan by sending gold to New York. The financial position in London is improving considerably, and through one cause and another, it has sent the price of our raw gold down from £6 to £5 14s. 6d. per ounce. This, no doubt, is a healthy reaction, but naturally it must be of interest to the Rand, as our present prosperity is based upon the premium of gold, therefore merchants, and, in fact, every man, woman and child in the Transvaal, has a big interest in the premium in gold keeping up.

According to a private cable received on Thursday, the prices of mining material hardware have advanced in Britain from £5 to £8 per ton during the past few weeks. The following are the latest quotations, f.ob. British ports :Steel joists, £27½; angles, £28; rounds, £30; steelplates, £30; boiler plates, £32; flats, 1-8, 3-16, £37½; shaftings, £40. Orders are difficult to place with manufacturers, both in Britain and America, as they are so full up with all iron and steel, as well as machinery work.

A coast trade circular for March quotes: British galvanised wire netting in 50 yard coils at 30 x 3 x 13, at 50s.; 24 x 1 x 19, 50s.; 72 x 2 x 19, 60s. Fencing posts, corner, 25s., intermediate, 20s. terminals, 21s. Imported cement, 375 lbs. nett, 34s. 6d. Doors, 6.6 x 2.6 x 1¼, 45s., by 1½ 50s. Ceiling and floorings, 1½ in. and 2½ in., 55s. per keg. White lead in oils, 56 lbs., 51s. and 112 lbs., 100s. Linseed oils, boiled No. 5 drums, 85s., raw 80s. Common raw, 47s. 4d., No. 5, drum. Turpentine, no quotation.

Sheba Gold.

The liquidator of the Sheba Gold Mining Co., Ltd., announces that, the reorganisation scheme having been duly approved, the new company has now been registered with the same name and with a nominal capital of £300,000 divided into 1,200,000 shares of 5s. each. The holders of share warrants to bearer are entitled to call for an allotment of shares of 5s. each in the capital of the Sheba Gold Mining Co., Ltd. (incorporated in 1920), credited with 4s. per share paid thereon to the number of shares of this company represented by their warrants. The liability of 1s. per share will be payoble as to 3d. per share on application, 3d. per share on allotment, and 6d. per share six months after allotment.

ALLEN, WACK &
SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] MARCH 20, 1920. [No. 1486.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News ... 45

Topics of the Week:

The Joint Housing of the Rand Technical and Scientific Societies ... 47

Vereeniging-on-Vaal ... 48

Victory Diamonds, Ltd.: Important Acquisition ... 51

A New and Promising Portland Cement Enterprise ... 53

The Government Leases on the Far East Rand ... 55

The Year with the E.R.P.M. ... 57

The Week in the Sharemarket ... 59

Diamonds in the Desert ... 61

Diamond Cutting ... 63

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades ... 65

Notes and News

Hume Pipes.

Cable advice has been received that the Stanton Engineering Co., one of the largest manufacturers of steel and iron pipes in the world, have acquired the sole rights for the British Isles for the manufacture of Hume pipes, and that considerable development in the replacement of metal pipes with concrete is in progress.

* * * *

Col. Ralph Stokes.

Col. Ralph Stokes, D.S.O., M.C., who has had such a brilliant War record and who was Assistant Director of Mines at General Headquarters of the British Army in France, and more recently C.R.E., Archangel, was back in New York in mail week and expects to be visiting South Africa in a few weeks' time. Col. Stokes will be remembered by a large number of readers of this journal as Mining Editor of the *Rand Daily Mail* and, later, as a member of the engineering staff of the Corner House.

* * * *

Expansion of Our Coal Industry.

We understand that important developments are pending in regard to the development of the South African coal export trade. We are not in a position at the moment to state the nature of these undertakings, but they certainly presage a considerable expansion of overseas trade, and taken in conjunction with the contracts secured by Natal Collieries for supplying coaling requirements at Marseilles they foreshadow a very substantial augmentation of the South African output.

* * * *

Chamber of Mines' Annual Meeting.

The annual meeting of the Transvaal Chamber of Mines will be held next Monday, March 22, at 2.30 p.m. The Executive Committee of the Chamber has decided, in view of the very great increase in the volume of work performed by the Chamber, to appoint a President who would devote his whole time to the work of the Chamber, instead of the office being held as hitherto by a member of the Executive Committee in an honorary capacity. In this connection Mr. H. O. Buckle has been appointed President of the Chamber for a period of four years, and a special meeting of the Chamber for the purpose of passing the necessary amendments to the Constitution will be held prior to the annual meeting.

* * * *

Chamber of Mines and New Patents.

At the end of 1918 eight applications to which the Chamber of Mines had entered opposition were still *sub judice*. In one case the application was amended to meet the requirements of the Chamber, and the remaining seven applications were abandoned. During the year 1919 89 applications were reported upon by the Patents Committee of the Chamber. It was decided that no action should be taken in 83 cases, and opposition was entered to the remaining six. In one case the applicants amended their specification to meet the requirements of the Chamber; in a second case the Chamber withdrew its opposition, and the remaining four oppositions were outstanding at the end of the year.

* * * *

South African Coal for Europe.

The decision of the British miners to strike for more pay may well have an important influence on the coal industry of South Africa, which is slowly but surely becoming a factor of importance in European coaling circles. We learn that there is a growing tendency for steamers bunkering at South African ports to take enough of our coal to last them on the return voyage if they are on the regular South African route. The contract recently secured by Natal to supply France's great Mediterranean port is another straw in the wind. The *Times*, commenting on Durban's contract to supply coal to Marseilles, says that the imports into Britain from Natal would be quite practicable, and would be accepted by many waiting ships. The paper points out that bunker coal in London costs 155s. per ton against coal from Durban at 32s. 6d.

Well-known Mine Manager Passes.

We deeply regret to have to record the death of Mr. Thomas Kerr, who passed away at Pretoria on Thursday, March 11. Mr. Kerr had for the last nine months suffered from miners' phthisis. He was born at Clytha Square, Newport, Mon., and was a brilliant student at the Royal School of Mines. He came to South Africa about 27 years ago and was a well-known mine manager on the Rand. The late Mr. Kerr and the late Dr. D. Macaulay were the owners of the Hanover Gold Mine in Southern Rhodesia.

* * * *

Consolidated Mines Selection Dividend.

The local secretary of the Consolidated Mines Selection writes that cabled information has been received from the head office in London to the effect that the members of the board of directors have decided to recommend a dividend distribution in respect of the year ended 31st December last, at the rate of 35 per cent., less English income tax. It is proposed to add an amount of £20,000, and £95,000 from share premium account, to the reserve account, bringing that account up to £195,000. The local office has not yet been advised of the rate of English income tax to be deducted from the distribution. The dividend will be payable after confirmation of the directors' recommendation by shareholders at the annual general meeting to be held in April next.

* * * *

Death of Mr. Hennen Jennings.

We regret to learn that the death has occurred at Washington of Mr. Hennen Jennings, mining engineer, associated with the beginnings of the mining industry on the Rand. Mr. Jennings was consulting engineer for many years to Messrs. Wernher Beit & Co., and President (1903 and 1904) of the Institution of Mining and Metallurgy. An American by birth, he was identified with mines in California and Venezuela before coming to the Rand. He was consulting engineer to Messrs. H. Eckstein & Co. from 1889 to 1898, and was also consulting engineer for various periods to the Transvaal Gold Mining Estates, Rand Mines, Robinson, Crown Reef, New Heriot, City and Suburban, Henry Nourse, Nigel, and New Modderfontein. He was greatly interested in educational matters, was a member of the Transvaal School Board in 1897 and 1898, a member of two technical education commissions in the Transvaal in 1902, 1903 and 1904. By the passing of Mr. Hennen Jennings the mining engineering profession loses one of its most notable and distinguished members.

* * * *

Globe and Phoenix Board.

An extraordinary meeting of the Globe and Phoenix Gold Mining Company was called for 16th February in London to consider resolutions to the effect that Mr. J. D. Hope, M.P., and Mr. F. A. Macquisten, K.C., M.P., be removed from their offices as directors of the company. The remaining directors, Earl Russell and Messrs. J. E. Howard and H. Miller, ask for proxies to be used in support of the above motions. The secretary issues a lengthy official circular (with copies of correspondence) giving the history of negotiations with a view to acquiring certain gold mining claims from the Rhodesia Exploration Company and others. The Globe and Phoenix Company offered £5,000 cash for these claims, or, as an alternative, offered to work them under a tributing agreement with options to purchase. The Rhodesia Exploration group's counter-offer was to sell the claims for 800,000 Globe and Phoenix new "B" 10s. shares to be created *ad hoc*, and the rights of which were to be deferred. Both offer and counter-offer were emphatically refused, but out of the negotiations—more or less indirectly—has arisen the regrettable "split" on the Globe and Phoenix Company's Board.

* * * *

The Outlook for the Bantjes.

In their annual report for 1919 issued this week the directors of the Bantjes Consolidated state: "The advent of the gold premium has naturally raised the question of whether mining operations can be recommenced. The consulting engineer in his report attached goes very fully into this matter and reviews the position from two points of view; firstly, the re-opening of the mine for the purpose of mining all the payable ore at present developed; secondly, the re-opening of the mine for the purpose of developing the southern claim area. In regard to the first, the consulting engineer advises that he cannot recommend the re-starting of mining operations at the present time. He points out that in order to mine the existing ore reserves an expenditure of about £100,000 would be incurred in dewatering the mine, re-equipping underground plant and re-conditioning the surface plant and equipment. He states that, assuming working costs to be 27s. 6d. per ton, and the gold premium 25 per cent., there would only be a gross profit of £66,000, exclusive of taxes. It is apparent that it would not be safe to assume that working costs could, on the small monthly tonnage output which would be mined, be less than 27s. 6d. per ton, neither would it be safe to assume even 25 per cent. gold premium by the time the mine could be dewatered, viz., 18 months hence and thereafter over the period required to work out the existing ore reserves. This scheme would involve risking the whole of the company's present cash on hand, and under present day conditions is not warranted. Regarding the second proposal, which involves an expenditure of approximately £270,000, there is nothing to-day to justify shareholders being asked to sanction the raising of so large a sum. Low values have been encountered in the area leased to the Consolidated Main Reef, and the unpayable values in that company's 11th level drive which is being put in towards the centre of this company's property, indicate that there is no encouragement at present to undertake the systematic development of areas below the existing workings. The consulting engineer states that the only conditions which would justify such a re-opening would be: (1) A marked and permanent fall in the cost of stores and materials; (2) a reasonably good prospect of developing pay ore below the present workings; (3) some stability with regard to the premium on gold. In the absence of these the consulting engineer states that the expenditure of £270,000 is not justified. There remains the continuation of the present policy which is the carrying on of the Consolidated Main Reef Company's 11th level drive from that company's boundary to a point about 500 feet below the lowest level reached by the present incline shaft of the Bantjes. The cost to be incurred by the company in this work should not be more than £20,000, against which may be set any sums received from the Consolidated Main Reef Company for any tonnage to be mined from the leased area, at 1s. 6d. per ton. This policy, as previously advised to shareholders, will enable the company to ascertain the value of the reefs at depth below the present workings for about half the length of the company's claim area. The directors have decided on the recommendation of the consulting engineer to continue this exploratory drive. At the present rate of driving a period of from three to four years is required to complete this work; pending its carrying out the company's cash will be conserved as much as possible."

* * * *

Postmas Diamond Prospect.

The following official communication has been forwarded by this company: Work has been much hampered by reason of the very abnormal rains. The manager reports under date of 13th March on No. 1 mine as follows: Shaft No. 5 now down to a depth of 17 ft.; No. 6, 39 ft.; No. 8, 38 ft.; No. 9, 66 ft.; No. 10, 41 ft.; No. 11, 28 ft.; No. 12, 25 ft.; No. 13, 37 ft.; No. 14, 28 ft.; No. 15, 31 ft.; No. 16, 17 ft.; No. 17, 12 ft. All in good yellow ground. On No. 2 mine work is being pushed; the two main shafts are now down over 60 feet in good yellow ground. Drilling to define extent of mine and to provide necessary water will commence on this mine next week under a contract made with Messrs. Fraser & Chalmers. For No. 1 mine a plant has been ordered for immediate erection with a capacity for 500 loads per diem, and which in ordinary circumstances should be in full working within the next four months. Mr. Dale Lace has taken up the 60,000 reserve shares under option to him to provide additional working capital.

TOPICS OF THE WEEK.

THE JOINT HOUSING OF THE RAND TECHNICAL AND SCIENTIFIC SOCIETIES

We welcome the news that the scheme to effect the joint housing of the Rand technical and scientific societies has, through the public-spirited aid of the Chamber of Mines and the efforts of some of our leading men, at last reached fruition. A home worthy of their number and importance has now been found for these bodies, and all concerned are to be congratulated on their achievement. It is understood that the Transvaal Chamber of Mines will make a loan not exceeding £10,000 on the property up to recently known as the Johannesburg Club in Fox Street. They undertake to subscribe 10s. for every pound raised by the societies concerned, the total under this head not to exceed £5,000 from the Chamber. The building has been purchased for £22,500, and it is proposed to make it more suitable by adding two floors and making all the necessary alterations and improvements. The Chamber's munificent offer may be regarded as another fitting tribute from industry to science on the Rand, and will doubtless be deeply appreciated by those who have worked so hard on the scheme. A brief history of the movement, now so happily crowned with success, may here be of interest. As far back as April of last year a joint meeting of representatives of the Councils of the various South African technical and scientific societies was held in the Council Chamber of the Transvaal Chamber of Mines to consider the question of the closer working and joint housing of technical and scientific societies in Johannesburg, as set out in a paper on the subject prepared by Mr. Percy Cazalet on behalf of the sub-committee representing the S.A. Institution of Engineers, the Chemical, Metallurgical and Mining Society, and the S.A. Institute of Electrical Engineers. At the meeting Mr. Cazalet, who was in the chair, recapitulated the various advantages to be gained by joint housing of technical societies and the reasons which had weighed with the sub-committee in deciding on the proposed scheme, and in so doing dealt with the action which had been taken in other countries in this connection, and exhibited slides of the famous engineering societies' building in New York. A general discussion followed, which indicated a unanimous approval of the principle of joint housing of technical societies as laid down in the paper, although it was pointed out on behalf of some of the societies represented, that while agreeing to the principle they were not empowered to commit their society to any definite decision in regard to financial assistance towards the scheme, as, in the first place, some societies had no funds at their disposal for such purpose, and secondly, where such funds did exist their disposal was governed by certain hard and fast rules in their constitution. It was felt, however, that details of this kind could better be dealt with by the joint committee of representatives of the various societies, the members of which it was proposed each society should be asked to appoint after the principle had been approved by the respective societies. Eventually the following resolutions were passed, to the effect that each society: (1) Is desirous of securing in Johannesburg a joint house with such other technical and scientific societies as have an appreciable proportion of their members resident on the Rand. (2) Agrees to pay in an annual sum either based on a *per capita* or other scale to be agreed, to a Trust Fund, the money so raised to go towards the cost of providing such joint institute. (3) Further undertakes, if legally possible, to loan at interest any capital sums which it is, or may become possessed of from time to time, to such joint institute for its legitimate purposes. (4) Appoints two members with power to act in conjunction with representatives of other participating societies as a joint committee towards the desired end; including appealing for funds, drafting a constitution, fixing the basis of contributions and, if these are approved by individual societies, securing land or buildings for permanent or temporary quarters and generally to be responsible for the bringing to fruition of the scheme for the joint housing of technical and scientific societies on the Rand. (5) Agrees that the joint committee shall be empowered to receive and deal with suggestions put forward by any of the participating scientific and technical societies through their nominated representatives. (6) Agrees to the inclusion of the following societies, or so many of them as may jointly or severally agree to take part in the scheme as participating societies, namely: S.A. Institution of Engineers, Chemical, Metallurgical and Mining Society, S.A. Institute of Electrical Engineers, Association of Transvaal Architects, Institute of Land Surveyors of the Transvaal, S.A. Association for the Advancement of Science, Geographical Society of South Africa, S.A. Association of Analytical Chemists, Astronomical Society, S.A. Society of Civil Engineers, Royal Society of South Africa, Institute of Mining and Metallurgy (local branch). These resolutions have formed the basis of the whole scheme, and it is understood that they have been substantially agreed to by ten of the chief scientific societies. The financial details will, obviously, require very careful handling, but should offer no insuperable obstacle if approached in the true co-operative spirit. It has been suggested that, following the example of the library of the Engineers' Club in New York, the new institution should make a feature of its technical library, and that those responsible for the Seymour Memorial Library might favourably consider its transference to the Fox Street building from the School of Mines. The idea, on the face of it, seems attractive, and several good arguments might be advanced in its support. At this juncture it is enough merely to mention it as a proposal worthy of consideration. Meanwhile we congratulate the Chamber of Mines on the excellent spirit shown in its generous action, and Mr. Cazalet and those associated with him on the success achieved.

The Coal Resources of Natal.

In concluding his "Notes on Geology of North-Western Portion of Natal Coalfield," read before the Geological Society, Mr. F. A. Steart writes: As the coal resources of the Province are a matter of some importance to the Union generally, it is desirable that a number of borings should be made to prove the area between the railway and the Drakensberg. This work might perhaps be undertaken by Government. It is frequently asserted that the areas of good bituminous coal in the Vryheid-Paulpietersburg district of Natal are "enormous" or "unlimited." One frequently hears and reads of "mountains of coal" and other extravagant expressions. It is true that the number of workable seams in that district is generally more than in the area covered by the maps; on the other hand, on account of the steady general rise of the coal seams from the southern area towards Vryheid, they are generally found high up in the mountains only or in the most elevated parts of the district, the flats usually being below the coal horizon. The proportion of coal-bearing ground to the total area of the district is very small indeed, and the proportion of good bituminous coal to the total coal area is much smaller still. Taking the Vryheid-Paulpietersburg area as approximately 700 square miles, the coal-bearing portion of this area is probably not more than 5 per cent. of the whole. The total area of good bituminous coal in the above district is, therefore, probably very much smaller than the figure given for the southern area. As far as the total resources of good bituminous coal in Natal are concerned, the true position, in the writer's opinion, instead of warranting the optimism which seems generally prevalent, is such as to call for the strictest economy by all concerned or interested in the coal mining industry. Especially is such economy needed when it is remembered that much of the coal being mined in Natal is of the best quality hitherto found in the Union. Unfortunately, this valuable but rapidly diminishing asset is at present being regarded much too cheaply and is not being disposed of to best advantage. Sufficient geological investigation has been made to make it almost certain that the coal seams of the Witbank district in the Transvaal are on the same horizon as the coals of the Natal coal mines, and it is not improbable that when proper and thorough investigation is made into the resources of good coal in the Union generally it will be found that these have been considerably overestimated.

VEREENIGING-ON-VAAL.

An Investigation into one of the Chief Industrial Centres of South Africa.

I.—A General Survey—A Place of Many Sided Activities Particulary Favoured by Nature—A Monument to the Foresight and Enterprise of Lewis and Marks—Power and Water—Agriculture and Milling—The Steel and Brick and Tile Works—Forestry and Horticulture—A Chrome Factory and New Hotel.

Few places, either in South Africa or for that matter anywhere else, have been so bountifully endowed by Nature with all the requirements for industrial advancement as has Vereeniging, the border town of the Transvaal and the Orange Free State, famous for the pact signed there in 1902 which brought the Anglo-Boer War to a conclusion. Vereeniging, in addition to its lasting historical interest, has, however, a more material value. Already it is an extraordinarily busy and thriving town. Comparatively few people in Johannesburg realise how busy and prosperous the place is. And that it is going to be very much more busy and very much more prosperous in the near future no one who has recently visited Vereeniging can doubt for a single instant.

Ideal Natural Conditions.

For Vereeniging cannot but help going ahead. The conditions which obtain there are so ideal for the development of industry that retrogression really seems to be out of the question. Water in plenty, coal by the square mile, cheap power, good climate, abundance of timber, fertility of soil, and an eminently central situation in regard to the whole of Africa south of the Zambesi River give Vereeniging a position of unparalleled advantage.

A Monument to Foresight.

The late Senator Samuel Marks was universally recognised as a man of remarkable business acumen and foresight. His was one of those extraordinarily long-sighted intellects which invariably live and die before their time. More than thirty-five years ago the late Senator acquired extensive holdings around Vereeniging, where the broad waters of the Vaal separated two Republics. Long before any railway traversed the territories of the two Boer Governments, before even the Rand was a gold mining camp, the late Senator's fertile brain realised the great industrial possibilities of Vereeniging. Over a third of a century ago "Oom Sammy" opened up the coal seams which dip under the Vaal and "rode" coal in ox wagons from the primitive pits to Kimberley, where fuel commanded a good price. It was his idea to run a service of barges to Diamondopolis from Vereeniging down the River, and had it not been for the intervention of the iron horse along the railway lines which sped to Johannesburg when the greatness of the Rand was realised, there can be little doubt that he would have gone on with the project and would have succeeded with it too. For the Vaal is navigable along the greater portion of its length. When the Rand Water Board barrage is completed in about 18 months' time, the Vaal and its tributaries will be navigable for 42 miles in the neighbourhood of Vereeniging, and this circumstance cannot help but add to the attractions and industrial value of the place.

Power and Water.

It has for long been renowned as a coal centre. This fact combined with the presence of the Vaal River coursing right through the coal seams gave rise to the erection of an electric power station at Vereeniging a few years ago. The installation is now one of the principal generating stations of the Victoria Falls and Transvaal Power Company, and it is one of the most cheaply operated power plants in the world. But industry at Vereeniging is by no means confined to the production of electricity. It requires some little space in order to define the many-sided activities of the place as it stands to-day, and as its numerous industries are constantly expanding and new spheres of commercialism are being exploited it will require a veritable volume to do adequate justice to Vereeniging in a few years' time.

The Accessibility of Vereeniging.

But let us for the moment endeavour to obtain a birdseye view of the astonishing project which Messrs. Lewis & Marks have created at the junction of the Transvaal and Orange Free State Provinces. Vereeniging may easily be reached by rail or road. It is distant from Johannesburg 50 miles along the main railway line through Germiston to Bloemfontein. It lies at an altitude of 4,751 feet, or just on one thousand feet below the level of the Golden City. An excellent road connects the town with Johannesburg through Natal Spruit, Klip River and Meyerton, and one can travel from the capital of the Rand to the border town by car in an hour and a half. There is another line from Johannesburg through Langlaagte to Viljoen's Drift on the Free State side of the Vaal, which brings Vereeniging slightly nearer Johannesburg than along the main line. Other good roads radiate from the border township, and incidentally it may be mentioned that Vereeniging may be reached by water along the Vaal River and that it has already been reached by air through the medium of the South African Aerial Transports. The traveller journeying from Goldopolis southwards on arrival at the border station will observe numerous signs of industrial activity without alighting from his compartment.

A Hive of Industry.

His eyes will certainly be arrested by the huge white columns of masonry alongside the railway just before the train draws into Vereeniging station. This structure has the appearance of a Corinthian temple. But in reality the edifice has a much more useful purpose than the worship of some impotent god. The columns are the grain elevators of the Vereeniging Milling Co. and are 100 feet in height. This equipment has a capacity of 100,000 bags of mealies, and when completed the top of the elevators will be 134 feet above ground level. Vereeniging is the centre of a rich agricultural district as well as the hub of an important coalfield and theatre of general industrial activity, and the

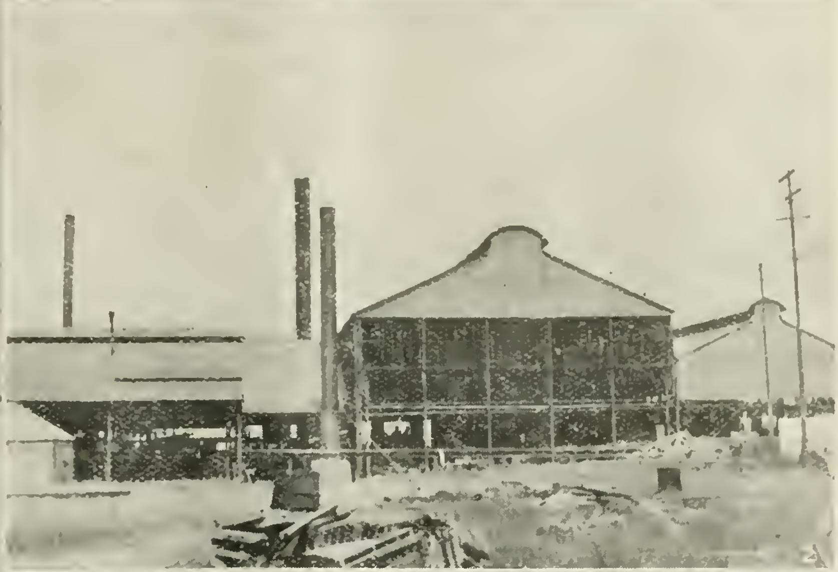
G. H. LANGLER & CO., LTD.,
ELECTRICAL AND MECHANICAL ENGINEERS.

Importers of Mining and Industrial Machinery.

Stocks of A.C. and D.C. Motors, Country House Lighting
and Pumping Plant, M.F. Lamps, etc.

1 and 2, CONSOLIDATED BUILDINGS,
HARRISON STREET, JOHANNESBURG,
P.O. Box **3762.** 'Phone No. **1155.** Tel. Add.: "TEMPUS."

SCENES AT VEREENIGING.



1. Vereeniging Milling Company: The Elevators.
2. Union Steel Corporation's Works.
3. The Vaal at Vereeniging, showing Bridge and V.F.P. Station.
4. At the Cornelia Colliery.
5. Vereeniging Station, with the V.F.P. Plant in the distance.
6. Site for the New Hotel close to the junction of the Klip and Vaal Rivers. Plantations and Vereeniging in the distance.

Milling Company is a very important offshoot of the parent company—Vereeniging Estates, Ltd. As one draws into the station the large buildings of the Union Steel Corporation may be observed, and to the right of them the brick smoke stacks of the Vereeniging Brick and Tile Company, Ltd. Nearer the river is the old Central Colliery and the Camp Coal Mine, and across the Vaal the extensive equipments of the Cornelia Colliery, whilst away to the right are the huge plantations containing six or seven millions of trees. Just after leaving the station the train crosses the historic bridge which fords the broad waters of the Vaal, with the power station of the V.F.P. right alongside the line.

Over Two Hundred Square Miles.

So much may one observe, but it is obvious that in an estate of over 200 square miles there are many things which are not for the eyes of the traveller passing hurriedly through to the coast or interior. One sees, for instance, nothing of the extensive farming and stock-raising operations which are being carried out by the Vereeniging Estates Company or of the Maccauvlei Orchards. Neither is there much to indicate the beginnings of new branches of activity such as the commencement of a chrome factory or of the selection of a site for a palatial hotel at a singularly charming spot close to the confluence of the Klip and the Vaal Rivers, where jaded Randites may soothe their week-end nerves and forget that they ever bought Crown Diamonds. Neither does the passer-by obtain any insight into the amazingly interesting technique of the various industries clustering around this prosperous and go-ahead town. Through the courtesy of the directors, a representative of this paper was enabled to visit Vereeniging the other day and there observe the remarkable industrial development which is taking place. The results of his observations will be recorded in subsequent issues of this journal, and we propose to deal next week with the operations and prospects of the Union Steel Corporation, one of the most important of the numerous enterprises which have been built up by Messrs. Lewis & Marks on the banks of the Vaal River.

(To be continued.)

CORRESPONDENCE AND DISCUSSION

Jackhammers: A Suggestion for the Chamber of Mines.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—During the last two or three years jackhammers have become a very important factor in stoping on the Rand and are now a serious rival to the hammer boy. This tendency will be accentuated as the demand for increased pay to hammer boys is met. It has been found that, except in isolated instances, the jack-hammer is able to do all classes of mining as cheaply and as safely as the hammer boy, and is at the same time very much more economical than that priceless commodity "native labour." The output per hammer boy averages very nearly a ton per shift, whereas jackhammers break approximately five tons or more per native shift. The shattering effect on hanging and footwall is very much less with jackhammers (as with hammer boys) than when a larger type of machine is used. As jackhammers have come more and more into prominence, so even greater attention has been paid to the question of supporting the machine, which was designed, in the first instance, to be used without a rig, and in many cases these machines are hand held. It has, however, become apparent that some form of support is necessary to work these machines to best advantage and to save the native operators from the excessive strain of holding the machines up to their work. Many and varied contrivances have been devised to this end, and in view of the importance of the subject in the economical and effective working of our mines, it would be of great interest to all mining men if you could give each of the inventors of such rigs an opportunity of explaining, in your columns, the advantages of his particular invention and the results achieved by its use. But as it is the miner who ultimately uses and is dependent for his livelihood upon the success or otherwise of the rig, it would be of great interest to get his opinion on the matter, and I would suggest that the following questions should be put to those who have had experience in the use of these contrivances: (a) How long have you run jackhammers? (b) Have you used them as hand-held machines? (c) Of what rigs for jackhammers have you had personal experience and what is your opinion of them? (d) Do you think these rigs suitable for use on other mines than that on which you are employed? (e) What are the best results you have achieved, and with what rig did you get them? Or the questions might be made to apply to the particular rig with which the miner is known to be familiar, *i.e.:* (a) What do you think of the "Diable" rig? (b) How does it compare with other rigs with which you are acquainted? If you think this suggestion worth carrying out, perhaps you would communicate with Mr. Vesey of the Chamber of Mines, who could supply you with the names of the various inventors whose efforts are considered worthy of consideration. The outcome of this suggestion might be that the Chamber of Mines might be induced to inaugurate a competition on the lines of the stope-drill contests held some ten years ago, by which the industry would undoubtedly benefit.—Yours, etc.,

F. C. W. INGLE.

Johannesburg,
15th March, 1920.

THE METROPOLITAN CARRIAGE,
WAGON & FINANCE CO., LTD.
BIRMINGHAM.

Manufacturers of
Railway Carriages.
Steel Wagons and Hoppers.
Steel Underframes.

Cars for Electric and Light Railways.
Railway Wheels and Axles of all types.
BRIDGES.
Makers of every kind of Rolling Stock.

Sole Representatives for the Union, Rhodesia and Mozambique:—
EDGAR ALLEN & Co., Ltd.
(G. F. WILLS, Manager),
5, NEW CLUB BUILDINGS, JOHANNESBURG.

VICTORY DIAMONDS LIMITED: IMPORTANT ACQUISITIONS.

Options Secured over 800 Square Miles of Territory in the Gordonia District Impending Flotation of Emerald Diamonds Limited with a Capital of £500,000 and Working Capital of £250,000—Another Important Postmasburg Venture—The Victory Company's Participation—Paardeberg West Secured—Position at Rietfontein.

A FEW weeks ago we announced particulars of the flotation of Victory Diamonds, Ltd. It may be recalled that the company was registered in the Orange Free State with a nominal capital of £60,000 in 1,200,000 shares of 1s. each; issued capital, £41,625 in 832,500 shares of 1s. each; vendors' shares, £20,000 in 400,000 shares of 1s. each; working capital, £21,625 in 432,500 shares of 1s. each; reserve capital, £16,375 in 367,500 shares of 1s. each. The directors are Messrs. Leopold Lewe (chairman), director of the Rouxville Diamonds, Robert Kincaid Farrant, Vincent Charles Cloete, Marinus Wilhelm Lensvelt, Louis Charlston Goch, William Ingham. Secretaries, L. Charlston Goch & Co., 90-94 Exploration Buildings, P.O. Box 4122, Johannesburg. The original property acquired was the farm "Mahura Muthla," known as Rietfontein, district Kuruman, from which diamonds of magnificent quality have been obtained. Since the flotation of Victory Diamonds the company has engaged on further business which should bear most profitable results.

THE PAARDEBERG ACQUISITION.

In the first place the Victory Diamonds Company has purchased outright the whole interest of the Paardeberg West diamond mine in the Kimberley district. This property has produced very fine diamonds in the past, and a parcel of stones from this property recently exhibited privately in Johannesburg consisted of about 70 carats of diamonds, which at a conservative estimate would average a selling price of about £10 per carat. The parcel included one or two magnificent diamonds of perfect shape and brilliancy. There are two washing plants on the Paardeberg West property, and it is intended to commence productive operations almost immediately. This asset in itself should prove a very valuable acquisition. The property has been very favourably reported on by Mr. Minnett Frames.

EIGHT HUNDRED SQUARE MILES IN GORDONIA.

In addition the company has secured options extending over a lengthy period in respect of a huge area of 240,000 morgen, or 800 square miles, in the Gordonia district of the Western Cape Province. Diamonds have been discovered over a large portion of this concession, and the existence of Kimberlite pipes has been determined on the farms Aries, Gemsbok Hollow, Witkop, Springbokvlei and Obobogorop. Washing plants already exist on these properties and the farms are well served in regard to water. An expedition is being dispatched immediately to the Gordonia farms for the purpose of exploring this huge area for payable diamond occurrences, and the directors, aided by first-class technical advice, are very sanguine as to results.

DELAY AT MAHURA MUTHLA.

At Rietfontein, the original acquisition of the company, work has been delayed by heavy rains which have flooded the open workings and by minor troubles with machinery. An efficient pumping plant has now, however, been installed and it is reckoned that within the next few weeks Rietfontein should be giving highly satisfactory results.

THE EMERALD DIAMONDS FLOTATION.

What promises, however, to prove the most important business of all which the Victory Diamonds Company has engaged on is the securing of a large participation in the capital of Emerald Diamonds, Ltd—a company which is now in course of formation with a capital of £500,000 in £1 shares. This concern has acquired control of a belt of twenty-five farms in the Postmasburg area about 140 miles west of Kimberley and in close proximity to the West End, Postmasburg and Makganyene properties. The company derives its name from the fact that emeralds have been found on one or two of these farms.

PIPES DISCOVERED.

True Kimberlite pipes have been discovered on the farms Kouwater, Waterstroomvlei and Makganyene No. 2 in this belt, and the indications are highly favourable for further valuable discoveries. There is indeed strong presumptive evidence of the existence of not less than ten mines on this belt of farms. At Waterstroomvlei a prospecting shaft has been sunk 25 feet into yellow ground and two beautiful pale blue stones have been discovered. At Makganyene No. 2 three small diamonds have been recovered by sieving. Dr. Merensky and other prominent mining engineers are at present on the properties, and they have also been examined by other well-known diamond mining men, who speak most highly of their prospects. The Emerald Diamonds, Ltd., which will be one of the most important flotations put through in this country of recent years will have a working capital of not less than a quarter of a million pounds and a very extensive scheme of exploration and development will be almost immediately engaged on. The directors of the Emerald Diamonds, Ltd., will include Mr. Leopold Lewe (chairman of Victory Diamonds, Ltd., and director of Rouxville Diamonds, Ltd.), and Mr. W. Ingham (who has just returned from the properties and is delighted with the prospects and has brought back samples of yellow ground of excellent quality from two new prospects), and Mr. Oppenheimer, of Capetown.

THE VICTORY'S PARTICIPATION.

In order to enable the Victory Diamonds, Ltd., to secure a large participation in the flotation of Emerald Diamonds, Ltd., the former company has passed a resolution increasing its capital from £60,000 to £120,000 and 100,000 shares have been called up from the reserve in order to provide further working capital for the company's operations. It will thus be realised that the Victory Company's position has been substantially improved and the future operations of this concern and of Emerald Diamonds, Ltd., will be followed with keen interest.

JOHN L. SMITH, late of Oldham.—Your father and wife both dead.

Please communicate with J. P. HALL, "Gorse Bank," Oldham, England.

SALISBURY, RHODESIA.

WIGG & JENKINS,

MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.

Gold and Base Metal Properties

FOR SALE AND WANTED.

Correspondence invited.

P.O. Box 118. Telegrams: "WIGG."

SIEMENS BROTHERS
& CO., LIMITED.

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE.
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes.
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud speaking Telephones. Portable Telephones.
Mining Telephones.

PRIMARY CELLS

Fluid and Dry.

WIRES

Rubber Covered. Gutta-Percha Covered.
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-Speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

Representative in South Africa.

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams : "WOTAN"**

A NEW AND PROMISING PORTLAND CEMENT ENTERPRISE.

Details of Latest Flotation to Exploit Attractive Commercial Possibilities of a Growing Industry.

A new Portland cement industry is being inaugurated near Port Elizabeth, and the prospectus appears elsewhere in this issue. In the United States Government's Official Bulletin No. 522, entitled "Portland Cement Materials and Industry of the United States," the Department of the Interior gives in exhaustive detail an account of the general status of the Portland cement industry in America. The following extracts from the work will be interesting reading for those not familiar with the industry.

History and Growth of the Cement Industry in America.

In its importance to our present civilisation cement is surpassed among mineral products only by iron, coal and oil. In rate of increase in annual production during the last decade even these three products cannot be compared with it. In 1890 the total production of Portland cement in the United States was only 335,500 barrels, valued at $439,050, in 1903 it exceeded 22,000,000 barrels, while the value was over $27,000,000. During the 16 years which witnessed the development of the American Portland cement industry, two of the greatest gold discoveries in the world's history were made—in Colorado and Alaska. The annual gold production of Alaska, and of the Cripple Creek district in Colorado have impressed themselves on every citizen of the United States, while the Portland cement industry has attained its growth in comparative obscurity. Yet on comparison it will be seen that the gold production of Cripple Creek is only slightly greater than the output of Portland cement, while the production of Alaska sinks into comparative insignificance. Since the above was written the American Portland cement industry has continued its remarkable rate of growth, reaching in 1911 an output of over 78,500,000 barrels, valued at $66,000,000. The recent growth of the American Portland cement industry has, as a matter of fact, been so rapid that its present relative standing among our great industries is realised by few, even of those directly interested. Its importance, both commercially and financially, is perhaps best brought out by comparison with the American iron industries, whose standing is everywhere fully understood.

Materials Used.

The ordinary Portland cement mixture, when made from normal and natural raw material contains about 75 per cent. of lime carbonate, and 20 per cent. of silica, alumina and iron oxide together; the remaining 5 per cent. including magnesium carbonate and other unavoidable but unnecessary constituents.

Magnesia.

The presence of much magnesia in finished cement is considered undesirable, 4 per cent. being the maximum permissible under most American specifications. Therefore the limestone to be used in Portland cement manufacture should not carry more than 3 or 4 per cent. of magnesium carbonate.

Prof. Schwarz's Comment on African Co.'s Limestone.

Professor Schwarz, in commenting on the chemical analysis of the limestone on these properties, states: "The low magnesia content is remarkable." Some of the samples analysed showing as low as 0·52 per cent. magnesium carbonate.

Clays.

For use as Portland cement materials, clays should carry not less than 55 per cent. of silica, and preferably from 60 to 70 per cent. A reference to the various analyses these clays shows the silica content at 64 per cent., certainly the ideal amount.

Location of Plant.

In dealing with the question of location of plant and transportation routes, the following paragraph from the United States Government Bulletin states: "Portland cement is bulky for its value, and the cement business is affected by transportation rates. At least two transportation routes should be available, and it is best of all if one of these be a good water route." The two farms are nine miles from the existing wharves at the important shipping centre of Port Elizabeth. The deposits also are, by a remarkable coincidence, located within a mile or so of the Zwartkops Railway Junction, where one line bears traffic on to Capetown, via Uitenhage, and through the districts of Oudtshoorn, Mossel Bay, Riversdale, Swellendam, Heidelberg, Robertson, Worcester, Wellington, Paarl and Stellenbosch, and another main line runs right through the deposits on to East London, Durban, Cradock, Kimberley, Bloemfontein, the Transvaal and Rhodesia, and the Congo. The facilities for doing a sea-borne trade could scarcely be improved.

Chemical Analyses of Limestones used in Cement Manufacture.

Twenty-four samples of limestones in the Midland counties in England show only 8 out of the 24 samples have over 80 per cent. carbonate of lime, while the other 16 samples contain only between 70 and 80. The silica content in the above 24 samples runs from 9·75 to 15·98 per cent. The magnesia runs from ·91 to 2·91. "A reference to the various analyses of our limestones is interesting when compared with the above. The persistent closeness of the carbonate of lime content in the various samples of our deposits is certainly gratifying (all in the eighties), and regarding the magnesia, Professor Schwarz's comment on the quantity of this material as revealed by the analyses is: "The low magnesia content is remarkable." Some of the samples analysed for the African Portland Cement Co., Ltd., show the magnesium carbonate content as low as 0·52, which for all purposes is practically negligible."

Port Elizabeth's £4,500,000 Harbour Works Retarded Owing to "Universal Shortage of Cement."

The following are extracts from a detailed description of the Port Elizabeth Harbour development works taken from the *Eastern Province Herald* of January 24th, 1920: "Unostentatiously, but none the less definitely, a start has

WANTED.
PROSPECTOR—MANAGER.

Wanted, thoroughly reliable steady man to act as Prospecting Manager on an Alluvial Gold Property situated in the Zoutpansberg District. Should have practical knowledge of alluvial work. Position open for six months from 1st May next.
Good salary will be paid to a first class man with Prospecting knowledge.

Apply to "C. D. R.,"
c/o "S. A. M. & E. Journal,"
P.O. Box 963, Johannesburg.

been made with the construction of the outer works at Algoa Bay, and although no spectacular developments are likely for some time to come, all details, all preliminary arrangements, and all the ramifications which engineering works of this nature and magnitude necessarily entail have been worked out and mastered. It is not proposed again to review Port Elizabeth's struggle for the provision of outer works, for that was done exhaustively in these columns when Parliament, in July, 1914, ultimately recognised Algoa's claims and voted £1,500,000 as a first instalment of the £4,500,000 which is required for the whole scheme drawn up by Mr. Nicholson. . . . The breakwater will be built of solid concrete blocks, each weighing about forty tons. It is estimated that about 24,000 of such blocks will be required. . . . The abutment at the jetty end will consist of solid monoliths of concrete, which will weigh 360 to 400 tons. . . . The universal shortage of cement is at the moment a brake on the progress of the work." A short account of the rapidity of the growth of the Portland cement industry in England may be fitting here. It is taken from page 6 of Mr. W. A. Brown's work, "The Portland Cement Industry." "Every year more of this indispensable building material is being used, and the growth in its use during the past decade is an indication of the high position which it has attained in the business world of to-day. Those who have most closely followed the history and development of the industry look forward confidently to a greatly increased consumption, and to a large addition to the variety of its uses. It already enters into the composition of at least 500 different articles and types of construction. While its principal and most common use is in street and highway paving, in the construction of canals, docks, piers, wharves, tunnels, buildings, bridges, retaining walls, and the like, a stage of development in its use has been reached where it is as efficient for drain-tiling as for bridges, for erection of statues and other ornamental work as for canals, for water troughs as for street pavement, and for fence posts as for silos. Far-seeing captains of industry have predicted that the 'Steel Age' through which the world's civilised life is passing will give place to a Concrete Period. Most of the greatest engineering triumphs of modern times, such as, for example, the Nile Dam at Assouan, the Barrage at Assiout, and the Panama Canal, have been rendered possible only by the extensive use of Portland cement concrete. In this, as in so many other fields of commercial activity, America is pre-eminent. Onlf twelve years ago Mr. R. W. Leslie, Assoc.Am.Soc.C.E., in a paper read to the International Engineering Congress at St. Louis, predicted that the Portland cement industry in U.S.A. would take rank with the great manufacturing interests, and exceed the output of any other country in the world. In 1913 the three greatest producing countries were Great Britain, with 3,000,000 tons; Germany, with 5,000,000 tons; and U.S.A. with 15,348,000 tons."

BUNKER COAL AT £7 10s. PER TON.

According to the *Times* the price of bunker coal at the Port of London is expected to advance a further five shillings, to £7 15s. per ton. The paper draws attention to the seriousness of the question, because it means another increase in freight rates on exports, which question is becoming critical.—Reuter.—*Daily Mail*, March 13, 1920.

In reproducing the above Reuter's cable of March 4th, 1920, the object is to emphasise the remote possibility of the old pre-War conditions of competition from overseas Portland cement factories ever returning. The following makes this clear. Between 30 per cent. and 40 per cent. (according to quality of coal) of the cost of producing Portland cement is absorbed by the coal item. With English coal quoted as above, at £7 10s. a ton, the coal item for producing the ton of finished cement would be 30 per cent. of £7 10s., that is 45s. per long ton. Before the War, with coal available at about 20s. a ton, the coal item in producing cement was only about 6s. per ton. After their return from Europe, the late General Botha and General Smuts stated that South African coal could be delivered at Newcastle, England, cheaper than English coal. The above cable corroborates their statement. Coal can be delivered at Port Elizabeth at about 23s. per ton of 2,000 lbs. Thirty per cent. of 23s. is only 6s. 9d. per ton for coal for producing cement at Port Elizabeth—which is an ountstanding advantage as against the 45s. per long ton for producing English cement. The above does not take into consideration the other big advantage in respect of the proposed increase of shipping freights on account of the increased cost of coal for shipping purposes. The above cable could be read a few times with interest, as it has an important and encouraging bearing on all South African industries.

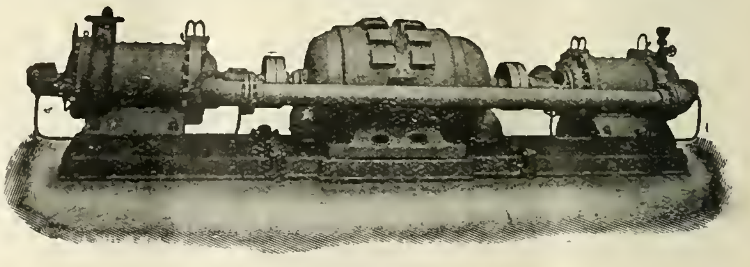
Below we give an extract from "The Limestone Resources of the Union," which is printed by authority of the Hon. the Minister of Mines and Industries: "The principal deposits worked on the Springbok Flats are situated on the farm Kalkheuvel, No. 389, about three miles east of Pienaars River Station, about 42 miles from Pretoria, to which place the whole of the output is sent for use in the Pretoria Cement Company's works. . . . The average composition of the limestone, after the removal of the sand and earth by sieving, is stated by the management to be about 82 per cent. $CaCO_5$ (carbonate of lime), 3 per cent. $MgCO_3$, 8 per cent. to 9 per cent. silica mostly in combination. . . . The following typical samples were taken by myself (Mr. Wybergh, who made the report on behalf of the Government:—Sample No. 581: CaO, 45·1 per cent.; MgO, 1·3 per cent.; SiO_2, 15·3 per cent.; ALO_3, 1·2 per cent. Sample 581 is compact limestone of average value. It represents the bulk of the material won. Calcium carbonate contents about 80·5 per ceint." The comparative interest in the above Government statement lies in the fact that the carbonate of lime in the above mentioned limestone deposits taken and used by the Pretoria Portland Cement Co., Ltd., from Kalkheuvel averages only 80·5 per cent. as against the 90 per cent., 92 per cent., 95 per cent., and 97 per cent., as stated in Professor Schwarz's final report of the analyses supplied by Dr. Marloth and Mr. Heymann.

SULZER

HIGH-LIFT CENTRIFUGAL

PUMPS.

For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:

RICE, WILSON & HERD,

86, 87, 88, 96, Standard Bank Chambers, Commissioner St.

P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.

Also South African Agents for

CALLENDER'S CABLE & CONSTRUCTION CO., LTD.

BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

THE GOVERNMENT LEASES ON THE FAR EAST RAND.

Valuable Report by the Inspector—Government Areas Accumulates over 11,000,000 Tons of Payable Ore Reserve—Position at Springs Improving—Brakpan's Outlook—Progress of Development at Modder East and West Springs—Percentages of Payabilities—An Interesting Study in Values and Widths.

The *Government Gazette* of March 12th contains reports by Mr. J. H. Twiddy, Inspector of Mining Leases, on the operations of companies in which the Union Government is directly interested as a lessor of claim areas on the Far East Rand. The mines in question dealt with in the Inspector's report for the year ending 31st December, 1919, are as under: Springs Mines, Ltd.; Modderfontein East, Ltd.; Brakpan Mines, Ltd.; Government Gold Mining Areas (Modderfontein) Consolidated, Ltd.; West Springs, Ltd. The reports are published "for general information," and it is to be observed that in each instance the report is the first annual report issued from the Inspector's office. The result of Mr. Twiddy's investigations is contained in fifteen highly informative pages, and as the status and prospect of each of these important properties is of such vital interest both to the country at large and to individual shareholders, we make no apology for quoting the Inspector at some length.

VALUABLE DEVELOPMENT FIGURES.

It has been truly said that the essence of success on the Far East Rand with its alternating zones of good and poor ore is the percentage of payability disclosed by development. We will therefore first of all deal with this important aspect of exploitation of these mines, placing them in order of pay percentage. The statistics in this connection are:

Mine.	Total Development, 1919.	Footage on Reef.	Footage Sampled.	Footage Payable.	Footage Payable per cent.
Government Areas	37,321	26,588	26,490	17,140	65
Modder East	22,463	15,055	14,565	9,145	63
Springs Mines ...	18,560	12,833	12,770	7,900	62
West Springs	780	780	815	435	53·37
Brakpan Mines ...	19,343	13,568	13,490	6,920	51

The reef widths and values disclosed by these developments are:

Mine.	Average Reef Channel width of Payable Footage. Ins.	Average Reef Channel Value of Payable Footage. Dwt.
Government Areas	50	17·4
Modderfontein East	24	18·7
Springs Mines	23	23·2
West Springs	25	14·6
Brakpan Mines	41	13·8

Taking Mr. Twiddy's figures and considering the development features from the point of view of inch-dwts., we arrive at the following interesting statistics:

Mine.	Percentage of Payability.	Inch Dwts. *i.e.* Width in Inches x Value in Dwts. over Payable Footage.
Government Areas	65	870
Modderfontein East	63	448·8
Springs Mines	62	533·6
West Springs	53·37	365
Brakpan Mines	51	565·8

It will be observed that there is some changing of positions when development is considered on the inch-dwt. basis. Government Areas still retains its lead, but Modder East occupies fourth instead of second place. Brakpan ranks next to Government Areas, and Springs West comes a bad last.

SPRINGS MINES: AN IMPROVING POSITION.

We may now pass on to a consideration of the Inspector's reports on individual mines. Taking Springs Mines, first of all it may be observed that Mr. Twiddy in his concluding paragraph remarks: "The property is being efficiently and economically worked." We take the following extracts from the Inspector's report on this proposition:

In order that overmining should not take place during the period of five years when the Government is paid only 5 per cent. of the profits. Clause 12 of the lease lays down the amount of gold that may be won without penalty. Up to the end of the year this amount, known as "desired recovery," was 431,126 ounces, whereas the mine has produced only 411,995 ounces. The payable ore reserves as at the 31st December, 1919, are estimated by the company at 2,417,298 tons, valued at 8·74 dwts. over 62·92 inches. This represents an increase of 49,662 tons compared with the estimate as at the 31st December, 1918, when the average value and width was 9·26 dwts. over 61·25 inches. The present premium on gold has not been taken into account in the estimation of the reserves. At date of closing this report, the details of the reserves are not yet in my possession, and any remarks concerning them are held over until my next report. The footage sunk in No. 3 shaft during the year amounted to 2,190 feet and the footage timbered to 2,221 feet, the total depth of the shaft being 2,634 feet, of which 2,604 feet are timbered. Leaders belonging to the Kimberley series were intersected but of narrow widths and low values. The Kimberley shales were encountered at a depth of 2,089 ft., and based on this information it is hoped to intersect the Main Reef at about 3,400 feet, and at the present rate of sinking this should take place some time in May next. A pumping station was cut at a depth of 1,996 feet. The condition of the mine has not yet reached a position to supply the mill to its full capacity. As pointed out in a previous report, the scarcity of stope faces and difficulties of underground transport are the governing causes, but these troubles are being overcome and during next year (1920) a considerable improvement should take place.

MODDERFONTEIN EAST.

Of this property the Inspector writes, *inter alia*:

At the date of the signing of the mineral lease agreement, certain mining operations had already taken place in the area now forming the amalgamated property. These operations consisted briefly of two shafts on the farm Klipfontein, one of which only reached the reef and from which some 6,000 feet of development work had been carried out, and a shaft on the farm Cloverfield, now called the No. 1 shaft, from which about 7,500 feet of development had been carried out. The shaft and workings on Klipfontein are full of water, no work having taken place in this section of the property. In the lease area section of the property two vertical shafts known as the No. 2 and No. 3 shafts have been sunk to the reef and development is proceeding in both shafts. The total depths of these shafts are respectively 1,218 feet and 818 feet. Besides the work in connection with these two shafts, arrangements were made with the Modderfontein B. Gold Mines, Ltd., for an extension of one of their eastern headings into this lease area in accordance with the general scheme approved by the Minister of Mines, and about 1,145 feet of exploratory work has been accomplished, but, unfortunately, owing to dykes and local disturbances, nothing very conclusive was arrived at and it was decided to suspend operations. The development of the mine has now reached such a position that a considerable body of payable ore has been opened up and the directors of the company some months ago were of opinion that the time had arrived for the erection of a reduction plant. Designs were prepared for a plant of 40,000 tons a month initial capacity, and inquiries were made as regards prices, but it was found that such a plant at the present moment was practically unobtainable except at enormous cost, and even then delivery of the plant at any fixed date could not be guaranteed. Owing to these conditions, the ordering of the plant at that time was considered a practical impossibility. Notification has been received from the company that "negotiations are well advanced with the New Kleinfontein Company, Ltd., for the lease of its Apex mill and reduction works. It is proposed to transport the ore from current development faces, together with such as can be handled from existing ore dumps, by railway from Geduld Station to Kleinfontein Siding. Arrangements and suitable terms have been made with the Railway Administration. The Modderfontein East Ltd., will lay a siding from Geduld Station to No. 1 shaft (Cloverfield) and be responsible for handling the ore on that section of the line. At the Kleinfontein end the trucks will be dealt with by locomotives of the Kleinfontein Railway Syndicate." A copy of the agreement with the New Kleinfontein Company now in draft has not reached me at time of writing this report, so that beyond the above notification I have no data to go upon. The company are, however, carrying out the necessary work to deal with the ore mentioned, and the three shafts are being connected on the surface by means of a mechanical haulage system, and bins are being erected at the No. 1 shaft from which the railway trucks will be filled. The railway siding to Geduld Station is also in course of construction. I am informed that it is the intention to rough-sort the ore on the mine before railing, and that the milling capacity of the Apex mill is 27,000 tons per month. It is anticipated that milling on a modest scale will commence in April next. The payable ore reserves have not been re-estimated since as at the 30th June last, comments upon which estimate were made in my report for the quarter ended 30th June, 1919. The tonnage was then 850,000 tons of an average value of 8 dwts. over a stoping width of 55 inches.

GOVERNMENT AREAS: A HUGE RESERVE OF ORE.

Mr. Twiddy points out that at this property:

Shaft sinking was started in January, 1911, and milling operations commenced in October, 1914, the capacity of the plant being then 50,000 tons per month. This capacity has been increased and the crushing plant now consists of 200 stamps and 25 tube mills and is capable of treating 135,000 tons per month, but up to date the necessary tonnage has not been forthcoming to work the plant to its full capacity. He continues: "The ore is drawn from four vertical shafts, each of seven compartments. The two northern shafts are each fed by an underground incline shaft which handles the ore from approximately midway between the northern and southern shafts, the dip of the reef over the northern area averaging about 16 degrees. The two southern vertical shafts are fed by horizontal cross-cuts, running north and south, equipped with electrical locomotives and mechanical haulages, the average dip of the reef in this section being considerably flatter, namely, about 6 degrees. The mine is being well developed, as may be gathered from the fact that the payable ore reserves at the end of the year reach the highly satisfactory figure of 11,001,700 tons, which is equivalent to nearly seven years' full milling capacity. During the year improvements in connection with the handling and transport of the ore underground have been introduced and further main haulages and cross-cuts have been equipped with mechanical haulages. Improvements have also taken place in the mine drainage system with a view to gravitating the mine are now practically independent of each other. Alterations have taken place in the mine drainag system with a viw to gravitating the mine water and concentrating it at certain points where it can be more economically and effectively handled. The mine ventilation also has been bettered, the capacity of the exhaust fan at the north-east shaft having been increased."

BRAKPAN MINES: THE DEVELOPMENT OUTLOOK.

In the course of his report Mr. Twiddy writes:

In accordance with the proposed scheme of development of the amalgamated property, sinking was commenced in 1917 of the two vertical shafts, Nos. 3 and 4, in the area leased from the Government, and these shafts have now reached a depth respectively of 2,290 feet and 2,487 feet. Making allowances for the delays occasioned by the striking of considerable flows of water in these shafts at different times which had to be controlled by the process of cementation, the rate of sinking has been quite satisfactory. The progress made in connection with the advancement of the headings in the mine as set forth in the proposed scheme of development has not come up to expectations, and the various development ends are considerably behind the point estimated to be reached as at the end of the year. The milling capacity of the plant was duly increased according to programmes from 60,000 to 75,000 tons a month, and now consists of 140 stamps and 12 tube mills, but so far the monthly tonnage treated has not reached the capacity of the original plant. The engines and boilers and other equipment necessary for the sinking of the Nos. 3 and 4 shafts, together with single and married quarters, native compound, etc., have been erected in the vicinity of these shafts, and a considerable number of married quarters have been erected in the Brakpan Township and on the mijnpacht, and also a recreation hall on the latter area. The payable ore reserves as at the 31st December, 1919, are estimated by the company at 2,484,117 tons, valued at 8·74 dwts. over a stoping width of 69·96 inches. This represents a decrease of 233,933 tons compared with the estimate as at the 31st December, 1918, when the average value and width were 8·80 dwts. over 68·88 inches. The present premium on gold has not been taken into account in the estimation of the reserves in fixing the pay limit. At the date of closing this report the details of the reserves are not yet in my possession, and any remarks concerning them are being held over until my next report. The smallness of the tonnage mined is due in a considerable degree to the payable ore bodies being largely confined to two areas on the eastern and south-eastern portions of the mine respectively, the former of which contains the greater bulk, carrying at the same time a higher average value. To mine from this area a percentage higher than is due to be drawn from it would mean that overmining would take place to an undesirable extent, and this would affect the desired recovery as provided for in the lease. The remaining blocks of ore are for the most part small and are scattered over the northern and western areas, and, owing in many cases to their isolated positions, it has not been found economically possible to draw a large tonnage from them. Moreover, owing to the concentration of the accessible ore bodies the handling and transport become limiting factors, and at present the haulages operating the two areas above referred to may be said to be taxed to their full capacity. During the year certain improvements to facilitate the handling of the ore from the eastern portion of the mine, together with increased storage capacity, have been brought into operation, and further improvements for handling and transport now being carried out in this section will shortly become available, and it is then hoped that the difficulties now experienced will to an extent be overcome. Until further development in other directions opens up fresh ore bodies for attack, I do not anticipate any great increase in the present tonnage.

WEST SPRINGS.

Of this property the Inspector reports:

An agreement has been entered into with the Springs Mines, Ltd., which owns the adjoining property to the east, to advance certain of its headings into the West Springs Company's property. So far only one heading has reached this boundary, and this has been driven a distance of 894 feet into the lease area. Of this fotoage, 890 feet have been sampled, the percentage payable being 51 per cent., with an average value of 14·7 dwts. ovr 25 inches. The footage sunk in No. 1 shaft during the year amounted to 982 feet, which is the total depth of the shaft. The shaft is timbered down to 952 feet. It will be remembered that the original No. 1 shaft, when it had reached a depth of 90 feet in February, collapsed on the east side and became completely wrecked. This collapse was no doubt due to rapid weathering of some intrusive dyke matter towards the shaft bottom. It was decided to abandon this shaft and to sink another—the present shaft in the vicinity. Fortunately the abandonment of the original shaft only entailed the removal of the headgear and two hoists. The boiler plant, consisting of eight boilers, together with other equipment, had not to be disturbed. The shaft, which is in quartzite, is being sunk by machine drills, and good progress is now being made. The fotoage sunk in No. 2 shaft during the year amounted to 591 feet, which is the total depth of the shaft, and it is timbered down to 564 feet. The rate of sinking of this shaft has been slow, due to striking a considerable quantity of water and to bad ground, and also to the provisional nature of the hoisting plant. There are now two permanent sinking hoists working, one of which came into commission in September, and the other in December, so that a considerable increase in the rate of sinking—now being carried out by machine drills—should take place. This shaft is also in quartzite. The whole of the footage on the east haulage was on reef, 435 feet being payable, equivalent to 58 per cent., averaging in value 371 inch pennyweights. The capital expenditure for the year amounted to £250,996. The progress made by the company during the year with the shaft sinking and construction work has been satisfactory, when the various delays and interferences due at various times to scarcity of native labour, strikes and difficulties in obtaining necessary building material and parts of machinery are taken into account.

TWO
WINNERS

DANIEL'S "SPECIAL P.P.P." PACKING

in all sizes from ¼ in. to 1½ in.

"RAINBOW" STEAM SHEET PACKING

1/32 in., 1/16 in., ⅛ in., ¼ in. thick.

CHEAPEST IN THE END.

SOLE AGENTS:

National Trading Co.,

53/56, CULLINAN BUILDINGS,
JOHANNESBURG.

Box 2762. Telegrams: "GLORIA" 'Phones 1205 & 1250

THE YEAR WITH THE E.R.P.M.

" Fundamental Change in the Position "—Increased Profit and Ore Reserves Due to Gold Premium—Points from the Reports.

The tonnage milled at the E.R.P.M. for the year 1919 amounted to 1,409,500 tons, which is an increase of 37,200 tons when compared with the previous year. The working profit for the year was £303,816 8s. 1d., an increase of £250,900 7s. 3d. for the year, of which £191,613 1s. 5d. is accounted for by the increased price of gold realised under the arrangement made for the disposal of gold in the open market.

The ore reserves at the end of the year amounted to 2,634,350 tons of a value of 6.3 dwts., an increase in the tonnage of 366,350 tons, whilst the value shows a decrease of .2 dwt. The increase in the tonnage is mainly due to the inclusion of a large quantity of ore which has now become payable by virtue of the increased price of gold.

The Directors state :—During the first half of the current year the position was critical, and the policy of the Board in restricting development to places where it was likely to obtain at least a reasonable percentage of payable ore was continued, and every endeavour was made to continue operations in the hope that the profits earned would cover fixed charges without encroaching on the financial position of the Company. This was accomplished notwithstanding an inadequate supply of native labour and increased costs of white labour and stores.

During the second half of the year the position was much improved by the increased price of gold, and steps were taken to increase the development programme, involving the deepening of four incline shafts, namely, Driefontein, Angelo West, Hercules and Cason Cinderella and the continuation of normal development throughout the lower part of the mine.

As regards the life of the mine, you will see that the Consulting Engineer, in his attached report, makes the following statement :—

> " The outlook has been fundamentally changed by the gold premium and the future will be dominated by its magnitude and duration. Working costs will probably increase concurrently, but up to the present such increase has been relatively smaller than the premium. With a premium at its present figure of approximately 40 per cent. the life of the mine would be greatly prolonged and even a substantial increase in working costs might not materially affect this result. On the other hand, with gold at its normal price it is very doubtful whether we could continue working to-day without loss."

ACCOUNTS.

From the Working Profit of £308,816 8s. 1d. has been deducted an amount of £17,219 19s. 8d., the difference between sundry items of expenditure and revenue, the chief item of expenditure being Debenture Interest £40,227 10s. 0d.

The net profit of £286,596 8s. 5d. has been carried to Appropriation Account and with the balance of £198.876 17s. 3d. unappropriated at the commencement of the year and a discount of £15,956 2s. 6d. on debentures purchased during the year, making a total of £501,429 8s. 2d., has been dealt with as follows:—Nominal value of debentures purchased during the year, £46,650; annuity to Government in respect of undermining rights, £17,567; property account, £9,004; Government taxes, £422 9s. 8d.—£73,643 9s. 8d.; leaving a balance unappropriated at 31st December, 1919, of £427,785 18s. 6d.

GENERAL.

As previously stated in the report, the disposal of gold in the open market chiefly accounts for the improved results obtained during the year. It is impossible to say how long this increased price for gold will be obtained.

Mr. E. H. Clifford, Consulting Engineer, writes :—Hereunder is a statement showing the results of the year's working as compared with those of the preceding two years :—Tons milled, 1917, 1,741,300; 1918, 1,372,300; 1919, 1,409,500; working costs per ton, 1917, 19s. 9d.; 1918, 22s. 6d.; 1919, 23s. 6d.; revenue per ton at standard price of gold, 1917, 21s. 11d.; 1918, 23s. 3d.; 1919, 25s. 1d.; profit per ton at standard price of gold, 1917, 2s. 2d.; 1918, 9d.; 1919, 1s. 7d.; profit at standard price of gold, 1917, £188,951; 1918, £52,916; 1919, £109,203; revenue from premium on gold, 1917,, nil; 1918, nil; 1919, £794,613; total profit, 1917, £188,951; 1918, £52,916; 1919, £303,816; development footage, 1917, 42,198; 1918, 19,372; 1919, 13,912; ore reserve tonnage, 1917, 2,732,000; 1918, 2.268,000; 1919, 2,634,350; average value of ore reserve, 1917, 6.2 dwts.; 1918, 6.5 dwts.; 1919, 6.3 dwts.; coloured labour strength—average, 1917, 12,431; 1918, 10,969 1919, 9,839.

The year's profit showed a material increase, the greater part of which was due to the gold premium. The yield was higher by 1s. 10d. per ton at standard price, but against this the working costs increased by 1s. per ton in spite of the restriction of development.

The adverse conditions to which I referred last year became more pronounced. The native labour was more inadequate than ever, and the cost of white labour and supplies continually increased. During the first half of the year the position was so critical that all efforts were devoted to keeping the mine working for as long a period as possible without making losses. With this object in view, development was restricted more than ever and the mine grade pushed to its highest possible point. The object was achieved, and the Company made sufficient to meet its obligations. During the latter half of the year the premium on gold radically changed the position, not only by providing funds for additional development, but also by enhancing the value of such ore as we could develop. Steps were accordingly taken to increase development, and an extensive programme is now in progress. This programme involves the deepening of four incline shafts, namely, Driefontein, Angelo West, Hercules and Cason-Cinderella, and the continuation of normal development throughout the lower part of the mine. The only area in which it is not intended to work at present is the Cason-Blue Sky Section, on account of the extremely unpromising values hitherto found therein.

It will be remembered that in the past the obstacles to development in the extensive and important section of the mine between the Driefontein and Hercules, covering a distance of no less than 9,000 feet along the strike, were unpayable values and water. At to-day's price of gold, some of this ore is no longer unpayable, and the improved outlook and longer life afford justification for the installation of pumping equipment to deal more effectively with the water than was possible in the past, more especially as there is evidence that the pumping is making a definite impression on the inflow of water. At the present moment the water in the lowest parts of the mine is handled by pumping stations at the different shafts which feed the main pumps on the 27th level. These separate pumping stations, although of substantial size, are liable at times to be overloaded, and it is therefore proposed to replace them by a main pumping station on the 34th level at the Hercules Shaft at a vertical depth of 5,000 feet below the surface. The installation contemplated will not be expensive in itself, but it entails a long connection on the 33rd level for drainage purposes. The great object to be attained is to have such command of the underground water that shafts and

'Phone 4673. Box 3162.

OSBORN'S
DRILL STEEL (solid and hollow).
TOOL „
ALLOY „
SPRING „
SHAFTING „
PLATE „

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
" DALY " TAPPETS.
TRUCK WHEELS & AXLES.

" TITAN " MANGANESE STEEL.
CRUSHER SPARES & MORTAR BOX LINERS.

MUSHET HIGH SPEED STEEL.

Files, Shovels, Saws, etc.

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

drives at the bottom of the mine can be advanced in the normal course of development work without perpetual danger of being flooded out. This object cannot be achieved in its entirety by the arrangements referred to, as a larger and more comprehensive installation will become necessary when the depth of the mine reaches 6,000 feet. During the course of the year you have sanctioned the purchase of the mining rights of the Ginsberg Gold Mining Company for the sum of £6,000. The Ginsberg Mine has a small but useful quantity of developed ore, and the purchase also automatically releases the common boundary pillars between the properties, portion of which are of fairly high grade. These advantages are materially enhanced by the gold premium, and are likely to be of considerably greater value than the consideration paid for them The ore reserves as at 31st December, 1919, are estimated as follows:—Main reef, tons, 162,420; value, dwts. per ton, 5.3; main reef leader, tons, 2,173,630; value, dwts. per ton, 6.5; composite reef, tons, 200,520; value, dwts. per ton, 5.5; Ginsberg Mine, tons, 97,780; value, dwts. per ton, 5.8; total, tons, 2,634,350; value, dwts. per ton, 6.3. This figure includes 190,850 tons in the form of shaft pillars, and therefore not immediately available. The tonnage has increased appreciably, but the value is slightly less than that of last year. The increase in tonnage is not due to current development—indeed, there was a shortage on this account—but chiefly to the acquisition of the Ginsberg Mine and to the inclusion of a large tonnage of ore which has now become payable by virtue of the gold premium. In the manager's report will be found details of the results of the year's development. The values are in some instances very good, particularly in the Cason-Cinderella section. In considering these figures, however, it should be remembered that a very high dgree of selective development has prevailed, and the results obtained are by no means representative of the value of the mine as a whole. The outlook has been fundamentally changed by the gold premium, and the future will be dominated by its magnitude and duration. Working costs will probably increase concurrently, but up to the present such increase has been relatively smaller than the premium. With a premium at its present figure of approximately 40 per cent., the life of the mine would be greatly prolonged, and even a substantial increase in the working costs might not materially affect this result. On the other hand, with gold at its normal price, it is very doubtful whether we could continue working to-day without loss.

Tullis

LEATHER BELTING

THE best possible results can only be obtained from any type of machine when using the most suitable Belting.

"**Tullis**" **Belting** is made by the largest Belting Manufacturers in the world, with a reputation and experience extending over 80 years

It is absolutely reliable **under every condition** and in **all climates.**

No matter the position of the Drive, there is a **Tullis Belt** made to meet the requirement.

Illustrated Catalogue on Application.

JOHN TULLIS & SON, LTD.,

BELTING SPECIALISTS,

ST. ANN'S WORKS,
GLASGOW, SCOTLAND.

JOHANNESBURG.
18, TROYE STREET.

C. M. & M. Society.

The ordinary general meeting of the Chemical, Metallurgical and Mining Society of South Africa will be held in the Lecture Theatre, South African School of Mines and Technology, Johannesburg, this Saturday, the 20th inst., at 7.45 p.m. A paper will be read on "Some Suggestions on Irrigation," by Mr. A. Baguley, B.Sc., F.I.C. (member). Replies to discussion: (1) "Bwana M'Kubwa Copper Mine," by Mr. E. M. Weston (member of Council); (2) "Hanging Wall Support on the Far East Rand," by Mr. L. W. Macer (associate). Final discussion: (1) "A General Review of the Economic Results attending the Gold and Base Metal Mining in the Pretoria Inspectorate during period 1904 to 1914," by Mr. Tudor G. Trevor (member); (2) "Some Possible Causes of Discrepancies between Mine and Buyers' Weights of Gold Bars," by Mr. Harry R. S. Wilkes (member). Continued discussion: (1) "The Solubility of Zinc in Cyanide Solutions," by Mr. H. A. White (member of Council); (2) "An Unusual Process in the Treatment of Gold Ore," by Mr. B. L. Gardiner (associate); (3) "Can Amalgamation be Dispensed With?" by Mr. E. M. Weston (member of Council); (4) "Means Adopted on the New Goch Mine for Reducing the Consumption of Mercury," by Mr. H. J. Lee (member).

East Rand Proprietary Mines,

LIMITED.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-fourth Ordinary General Meeting of Shareholders for the year ended 31st December, 1919, will be held in the Board Room, Second Floor, The Corner House, Johannesburg, on Friday, the 28th May, 1920, at 11 a.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st December, 1919, and the Reports of the Directors and Auditors.
2. To elect Directors in the place of those retiring in accordance with the porvisions of the Company's Articles of Association.
3. To determine the remuneration of the Auditors for the past audit, and to appoint Auditors for the ensuing year.
4. To transact any other business which ought to be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Share Transfer Books of the Company will be closed from the 22nd May, 1920, to the 28th May, 1920, both days inclusive.

Holders of Share Warrants who desire to be present or represented at the Meeting shall produce their Share Warrants (or may at their option deposit same) at the places and within the times following:—

(a) At the Head Office of the Company in Johannesburg, at least 24 hours before the time appointed for the holding of the Meeting;

(b) At the London Office of the Company, No. 4 London Wall Buildings, London, E.C.2, at least 30 days before the date appointed for the holding of the Meeting;

(c) At the Office of the Crédit Mobilier Français, 30 and 32 Rue Taitbout, Paris, at least thirty days before the date appointed for the holding of the Meeting;

and shall otherwise comply with the "Conditions as to the issue of Share Warrants" now in force.

Upon such production or deposit a Certificate, with Proxy Form, will be issued, under which such Share Warrant holders may attend the Meeting either in person or by proxy.

By Order of the Board,
RAND MINES, LIMITED,
Secretaries.
S. C. STEIL,
Secretary.

Head Office:
The Corner House,
Johannesburg, Transvaal,
18th March, 1920.

THE WEEK IN THE SHAREMARKET.

Continued Diamond Activity—The Fluctuating Price of Gold—Silvers Better—Oils Quiet.

The market has been fairly steady during the past week despite fluctuations in the price of gold and uncertainties in regard to the political situation. It is now, however, clear that General Smuts will " carry on " with the leadership of the country, and this fact appears to have been appreciated to some degree by operators, the price of leading stocks having firmed up a point during the last day or two. Gold, after declining sharply from 120s. to 114s. 6d., has had a further slump to 107s. 2d., but has since recovered to 112s. 6d. These variations in the selling value of our product have naturally made their influence felt on the quotations for productive mines. New Modders have been as low as 77s. and Modder B.'s do not improve much beyond 147s. 6d., which is £2 below their year-end price. Springs have been a weak feature at 54s., and as to developing concerns Modder Easts are dull at 25s. 6d. and West Springs weak at slightly over par. Considerable interest attaches to the results being secured by the mines during the current month. March has so far been free of any serious labour troubles. It is, moreover, a full working time month and furthermore profits will not be so seriously affected by retrospective readjustments in respect of increased pay as in February. Under these circumstances better returns should be secured, but whether the market will respond readily to an increase in profit earning is another question. The premium on gold is evidently an unstable factor, and this combined with political uncertainties both in South Africa and Europe does not make for a strong market. Silver, like gold, has fallen in price recently, but Transvaal Silver and Base Metals exhibit a decided tendency towards improvement. Leeuwpoorts have declined, but Rooibergs are rather harder. Coal shares, despite the improved outlook for building up a large South African export trade, are lifeless. Oils continue to be disappointing, although Wakkerstrooms have advanced slightly on better news from that property. Diamond shares continue to be the media of much speculation. The new Frank Smiths have been done at 18s. Crowns remain around 13s. Greigs have maintained a steadier level at about 52s. 6d. Basutos have improved to 11s. 9d., and Astorias and Victorys keep steady around 24s. and 3s. respectively. As long as dealings in the large gold stocks are curtailed there is certain to be activity in the diamond section of the market. New ventures appear weekly and we learn that the latest syndicate shares to be dealt in locally are those of a concern styled Kenhardt Diamonds.

	Fri., 12th.	Sat., 13th.	Mon., 15th.	Tues., 16th.	Wed., 17th.	Thurs., 18th.
Anglo-Americans	50 0†	49 6†	49 0	48 9*	48 6	49 0B
Apex Mines	7 3	—	6 9*	7 0*	7 0*	—
Bantjes Cons.	4 1	4 0	4 0†	3 10	3 9*	3 9*
Blaauwbosch Diamonds	90 0†	90 0†	—		—	—
Brakpan Mines	70 0*	71 0*	71 0*	72 6	72 6*	72 6*
Breyten Collieries	—	8 0*	—	8 0*	8 0*	—
Brick and Potteries	4 6*	4 6*	4 6*	4 6*	—	4 6*
Bushveld Tins	1 9*	1 9*	1 9*	1 9*	1 9*	1 9*
Cinderella Cons.	6 6*	6 6	6 6*	6 9*	—	—
City & Suburbans	6 0*	6 0*	6 0*	—	6 0*	6 3*
City Deeps	60 0*	58 9	57 6*	57 6	59 0*	57 6*
Clydesdale Colls.	24 0*	—	24 0*		—	—
Cons. Langlaagtes	—	—	23 0*	—	—	—
Cons. Main Reefs	14 6*	14 0	14 6	14 6	14 6	14 3*
Cons. Mines Selection	32 0*	31 0*	31 0*	32 0*	32 0*	32 0*
Coronation Freeholds	2 3	2 2	2 1*	2 0*	2 2†	2 2†
Coronation Syndicates	—	16 0*	—	15 0*	16 0*	17 0A
Crown Diamonds	13 3	13 6	13 4½	13 1½	12 6*	12 6*
Crown Mines	75 0*	75 0*	80 0†	—	75 0*	75 0*
Daggafontein Mines	17 6*	18 3	17 9*	18 0	18 0	17 9*
Do. Options (5 years)	3 6*	2 6*	2 9*	3 3	3 3	3 0*
Durban Roodepoort Deeps	—	9 0†	—	9 0†	—	—
East Rand Coals	2 6	—	2 4*	2 3*	2 3*	2 3
East Rand Deeps	1 2*	1 2*	1 1	—	1 3*	—
East Rand Minings	—	—	22 6†	—	—	22 6†
East Rand Props.	12 0	11 0*	11 6	11 9	11 9*	11 6*
East Rand Debentures	—	—	£70*	—	—	—
Eastern Gold Mines	1 4*	—	1 4*	1 4*	1 3*	1 4*
Ferreira Deeps	—	12 6†	12 6†	12 6†	—	11 6
Frank Smith Diamonds	9 6	9 4	9 3	9 0	9 0	18 0
Geduld Props.	51 6	51 0	50 0*	51 3	51 0	51 6
Glynn's Lydenburgs	—	18 0†	18 0†	18 0†	18 0†	18 0†
Government Areas	96 0	94 6	95 0	95 6	95 6*	95 6
J'burg Brd. of Executors	35 0*	35 0*	35 0*	35 0*	35 0*	—
Jupiters	5 9*	5 9*	6 0*	—	5 6*	5 9*
Klerksdorp Props.	2 1*	2 0*	2 1*	—	—	—
Knight Centrals	6 9*	7 0†	6 7*	6 6*	6 9†	6 3*
Knights Deeps	12 0†	10 0†	—	10 6†	10 0†	10 0†
Lace Props.	14 0*	14 6*	14 6	14 0	13 6*	—
Leeuwpoort Tins	31 0	30 0*	30 3	29 9	30 0	29 6*
Lydenburg Farms	7 0*	7 6	7 3*	7 6	7 5*	7 6
Meyer & Charltons	100 0*	—	—	—	—	—
Modder B.	149 0	147 0	147 6	148 6	147 6*	147 6*
Moder Deeps	53 0	52 3	52 3	53 0	53 3	53 0
Modder Easts	26 0	25 9	25 6*	25 9	26 0	26 0
Do. Options (3 years)	6 0	5 7	5 5*	5 9†	5 7	5 4
Do. Options (4 years)	10 0*	9 6	9 8*	10 2	10 2*	10 0B
Natal Navigation Colls.	—	24 0*	—	24 0*	—	24 0*
National Banks	—	285 0†	285 0†	—	285 0†	—
New Boksburgs	—	—	2 1	2 2	2 0*	2 0*
New Eland Diamonds	76 0*	77 0*	—	—	76 0*	—
New Era Cons.	10 6	10 3*	10 3*	10 0*	10 0*	10 0*
New Geduld Deeps	2 5	2 3	—	—	—	—
New Kleinfonteins	13 0	12 6*	12 6*	13 3	13 3	13 0
New Modders	78 0	78 0	78 6	78 6*	78 6	78 6
Nigels	9 6*	10 0†	—	9 0*	9 0*	9 0
Nourse Mines	14 0*	14 0*	—	14 0*	—	14 0*
Premier Deferred	—	—	—	140 0*	—	—
Pretoria Cements	99 0*	99 0	98 0*	97 6*	98 0*	100 0A
Princess Estates	2 6*	2 6*	—	2 6	2 6*	2 8
Rand Collieries	—	3 0*	—	—	—	3 0*
Rand Nucleus	—	—	2 0	2 2†	—	—
Rand Selections	100 0	100 0†	95 0*	97 0*	97 0*	99 0*
Randfontein Deeps	6 9*	7 3	7 6*	7 0*	7 3	7 0*
Randfontein Estates	24 9*	24 6*	24 9	25 0	24 6	24 6
Roberts Victors	18 3B	18 0*	17 3	17 0*	18 3†	17 0*
Rooibergs	11 7½	11 0	10 6	11 6	11 3*	11 3*
Roodepoort Uniteds	—	4 0*	—	—	4 0*	4 0*
Shebas	3 6†	3 1*	3 1*	3 3*	3 3*	3 1*
Simmer Deeps	3 6†	3 9†	—	3 3†	—	3 3†
S.A. Lands	6 0	5 9†	5 10	—	5 11*	5 11
Springs Mines	53 9*	54 0	54 0	54 0	53 3*	53 6*
Sub Nigels	17 0*	16 9*	17 3	17 0*	17 6	17 6
Swaziland Tins	16 6†	16 6†	16 6†	16 6†	16 0†	14 3*
Transvaal G.M. Estates	16 6†	16 6†	—	—	—	16 0*
Van Ryn Deeps	95 6	93 0	94 6*	96 0	96 0*	97 0
Village Deeps	—	—	—	—	—	14 0*
Van Dyks	3 6	3 6*	3 3*	—	3 6*	3 6*
West Rand Cons.	7 6†	8 0†	—	8 0†	8 0†	7 0†
Western Rand Estates	7 0*	7 0	7 3*	7 0	7 0*	7 0*
Witwatersrands	—	19 9†	18 0*	20 0†	20 0†	—
Wit. Deeps	10 9*	11 0*	11 6*	11 9	11 3*	11 0*
Wolhuters	6 0	5 9*	6 1½	6 1*	5 9*	6 1
Zaaiplaats Tins	11 0*	11 0	10 9	10 9*	10 9	10 6
Union 5 per cent.	£101¾	—	£102†	£101¾	£101½*	£102
Hume Pipes	23 9*	23 9*	23 6	23 6*	23 9*	24 0
New States	28 9	28 3	28 0A	—	28 6A	28 3*
Kaalfontein Diamonds	0 6	0 8	0 7	0 6*	0 7*	0 11
Rouxvilles	24 9	24 6*	24 6*	24 6	24 3*	24 6
Southern Van Ryn	9 0	9 0	9 0	10 0	9 6	10 0
S.A. Townships	14 9*	14 6*	14 6*	14 0*	—	14 5*
S.A. Alkalis	22 0*	23 6*	22 6*	21 0*	21 0*	23 0*
Transvaal Silvers	51 0	48 0*	48 0*	49 0*	50 0A	53 9
Do. Options	31 0	31 0	—	31 6	33 0A	34 6
Tweefontein Colls.	25 0†	25 0†	25 0†	25 0†	25 0†	25 0†
Victory Monarch Diamond	61 0*	61 0*	61 0*	61 0*	61 0*	61 0*
West Springs	21 9	20 0A	21 0*	21 0	21 0	20 9
Do. Options	—	5 0	5 0	5 0	5 0	5 0
Tudors	—	1 3*	—	1 3*	—	—

*Buyers. †Sellers. AOdd lots. BEx London.

Roberts Victor Diamonds.

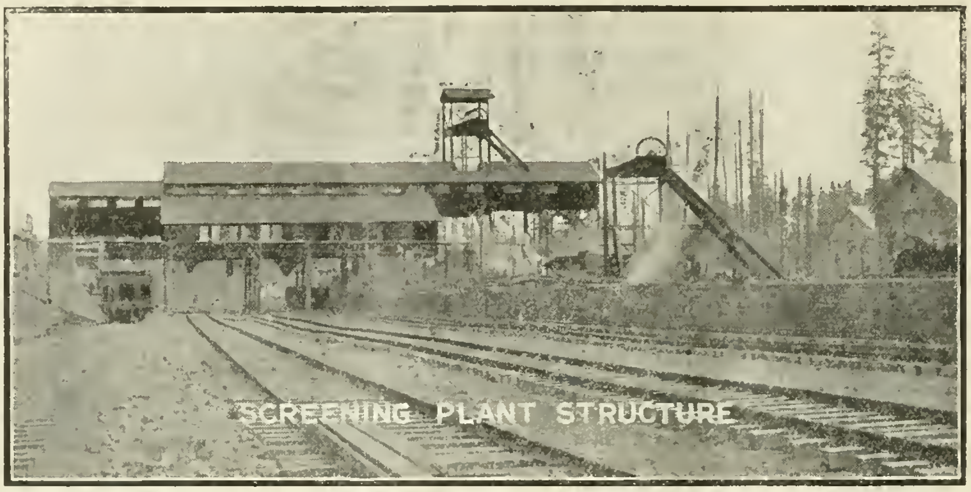
The result of tailings washing for the month of February were as follows: No. of loads of tailings washed, 12,169; diamonds recovered 1,711½ carats; being an average of 9·4 carats per 100 loads treated. The washing gear ran 18 out of 21 possible working days, frequent stoppages having been caused by rain. The diamonds have not yet been valued.

HEAD, WRIGHTSON & Co., Ltd.,

ENGLAND,

Manufacturers of all Classes of

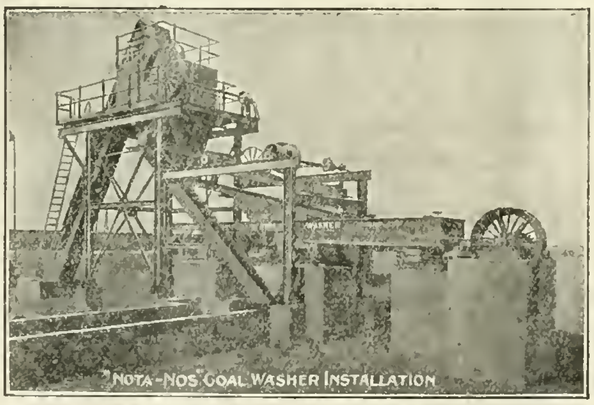
COLLIERY PLANT.


SCREENING PLANT STRUCTURE

Headgears and Coal Screening Plants.

MAKERS OF

- Headgears.
- Headgear Sheaves.
- Cages.
- Kep Gears.
- Stephen Humble Safety Hooks.
- Friction Driven Tipplers.
- Jigging Screens.
- Marcus Screens and Conveyors, etc., etc.


"NOTA-NOS" COAL WASHER INSTALLATION

MAKERS OF

- Plate Picking Belts.
- Deflecting Jibs.
- Raising & Lowering Gears.
- Scraper Conveyers.
- Bar Picking Belts.
- Elevators.
- Creepers.
- Rotary Screens.
- Band Conveyors, etc., etc.

COAL WASHING PLANTS.

Designs prepared and estimates submitted by

HEAD, WRIGHTSON & CO. (SOUTH AFRICA) LTD.,

47-48, Standard Bank Chambers, Johannesburg.

DIAMONDS IN THE DESERT.

A Pegging Scramble—The Coming Rush Near Taungs.

Lively scenes are in promise for the 24th of this month on or near the banks of the Hartz River, in the neighbourhood of Taungs, for a considerable area, held by some to be richly diamondiferous, is then and there to be proclaimed by the Mines Department. Thousands of people, each eager to secure a claim, are expected to be present. The lot will be lined up for a pegging scramble, and started by crack of a pistol. They will have a long distance to run, for the ground to be covered comprises about 750 morgen two and a half square miles. The entrance fee is a shilling for a digger's certificate, which however, will have to be applied for at least a fort night in advance, thereby giving opportunity for the applicant's name to be posted at the Magistracy when his letter of request is received. The idea is to give opportunity for hearing objections from diggers' committees or others, so that "crooks," I.D.B.'s and others of the fraudulent fraternity may be denied all share in the scramble, for such, in the circumstances, the coming race will assuredly be. There will be, perhaps, 10,000 starters, but though everybody is assured of getting one claim—provided he has wind and energy for a couple of miles walk, how much else he will get, beyond the privilege of paying a monthly licence of 5s. to the Government, seems problematical. Everybody knows that many of the claims must be valueless, but under which of them the diamonds lie is what nobody knows, though the experts have their theories.

It must be made plain that the date above given, that of the 24th instant, is provisional. Whether it will actually and finally be adopted depends on the behaviour of the Hartz River, which, at the time of writing, is in flood; and according to the report received a day or two ago by the Mines Department, has converted the surrounding country into a swamp. The proclamation has long been expected, and the Magistrate's staff at Bloemhof—the official headquarters—have been working overtime for weeks past in their efforts to cope with the rush for diggers certificates. It may be explained that not any Magistracy is the place at which to apply for a certificate, but only a Magistracy which has a digging within its area. If the Hartz River should continue in flood, there is a possibility of the proclamation being deferred for nearly two months. The season, it is thought, will then be advanced enough to enable the pegging scramble to take place on dry ground, and to keep down to a minimum the life of enteric and malaria disablements, of which, it seems inevitable, that there will be some. If the date of the proclamation should be deferred, there will doubtless be more entrants for the race, but on the other hand the patience of a number will exhaust itself, and they will not materialise at the starting time. Some have already arrived on the scene of the future struggle (the fight will, of course, be for what may be considered the best positions), and made their camps there. Why, then, should they expend time and money does not seem clear, because they will not get one inch of start over the man who, with his digger's certificate in his hand, toes the line ten seconds before pistol fire. Perhaps they hope to pick up local knowledge with the view of selecting beforehand the place in which to peg their luck. On the day of the proclamation no man will be allowed to stake out more than one claim, but a week later, if space is still available, he may mark off a further number not exceeding five. The race will not be reserved altogether to the swift, but that the obese, the elderly, the halt and the blind may have their share in the excitement of it, since Parliament, in quite a sporting spirit, has ordained that each man may run by proxy. All the law requires on this point is that the said proxy shall hold in his hand the digger's certificate, bearing the name of his principal.

The theatre of the coming scramble is a native reserve, out of which the Mines Department, with the thoughtful idea of preventing undesirable encounters, have fenced the natives. But the latter, nevertheless, come into the business to very practical effect—to the extent, indeed, of a fourth share in the licence fees to be paid by the diggers. As the ground is valueless, except for pasture, and is poor even for that purpose, they will have no cause to complain. Government, by the way, has had no small difficulty in convincing them on this point, and some of the chiefs and headmen are believed to be still nursing a sense of grievance in regard thereto. When the ground has been worked out and de-proclaimed, the natives will regain possession, but if it is valueless now, it will be dangerous then—a mass of holes, perilous to grazing stock. The law in this respect would seem to want alteration, for it would only be fair that the diggers should replace the earth which they remove, a thing that could be done by them with little difficulty. At the least, if they leave the holes, they should be required to fence them.

Besides the natives and the lucky minority who may strike claims with stones in them, the only other people who seem likely to benefit by this new diamond rush are the keepers of the mushroom hotels and the proprietors of the stores, butcheries and bakeries that will soon be standing ready in situ. Government has gone to much trouble and expense, not only in respect of the fencing above mentioned, but also to provide a water supply, as free as may be from microbes of the enteric and other undesirable varieties. The multitude, it seems, will have their gamble, and a paternal Government has felt it a duty to see that they, its subjects, if they lose their cash and labour therein, shall, as far as possible, preserve their health. There seems to be no great prize sticking out for anybody in the enterprise now considered, unless somebody should have the luck to find a pipe and get the rich share of a fourth, which the law awards to the discoverer. Those who content themselves with going to the films to see the rush of the thousands, as there reproduced in life pictures, will probably get out of the scramble as much satisfaction as most of those in it, while saving their trouble and expense.—From a correspondent of the *D.F. Advertiser.*

Mashonaland Consolidated Activity.

The accounts for the year to March 31 last show a loss of £1,009, increasing a debit balance brought in to £7,881. The report states that the reorganisation of the capital was successfully carried through in May, 1919, and 428,478 new ordinary shares have been allotted at par. The authorised capital is £300,000, now divided into 3,032,448 ordinary shares of 1s. each, £161,622, and 7141,883 deferred shares of 4s. each, £148,378. The issued capital at this date (January 27, 1920) consists of 741,883 deferred shares of 4s. each, £148,378; 1,170,386 ordinary shares of 1s. each, £58,518, leaving 1,862,082 ordinary shares available for future issue.

During the latter part of last year instructions were given to the company's local representative to have inspections made of the company's mining properties, with a view to work being done on such as appeared to be the most promising. As a result of this inspection contracts have been entered into, and development work is proceeding on the following seven blocks of claims, viz.: Hepworth, Crown, Express, Unknown, Hero, Beg Ben, and Fearless. The work has not proceeded far enough to enable the directors to say that each of the above properties will develop into a payable mine, but the result on several of the claims is so far satisfactory that the directors have felt justified in requesting Lieut.-Colonel H. H. Johnson, D.S.O., M.I.M.M., who was at one time consulting engineer to the company, and has recently been demobilised from the Army, to proceed to Rhodesia to inspect the different properties and report fully to the board. Colonel Johnson left London on December 24, and is now in Rhodesia. Two other blocks of claims, the Glendarra and the Queen's Prize, are let on tribute. The company still retains the sole mining rights on 75 square miles of land in the Mazoe district, known as Moore's Concession.

NEW PROPERTIES.—The company's local representative was authorised to obtain options on further mining properties. Several offers were received, and an option has been taken over one property in the Belingwe district. This has been favourably reported on by the local engineer, and Lieut.-Colonel H. H. Johnson is to make a full examination on his visit to Rhodesia. Should his report be favourable the directors anticipate that the property will be a valuable acquisition for the company.

RHODESIA CONSOLIDATED, LTD.—In December, 1919, the directors entered into a contract to purchase 280,000 fully-paid shares of 10s. each in Rhodesia Consolidated, Ltd., and a portion of the shares has already been taken up and paid for. The directors consider that the terms upon which this important interest has been acquired are very satisfactory, and that the transaction will prove a profitable one to the company. The following is a summary of the main assets of Rhodesia Consolidated, Ltd., at November 30, 1919:—Mining claims in Rhodesia, 260; mining claims on the Far East Rand, 600 claims on Vogelstruisbult; building stands in Rhodesia, 432,400 acres (approximate). Shares in other companies mainly comprise 65,380 Falcon Mines, Ltd., £1 shares fully paid, and 69,911 Asp Gold Mining Co., Ltd., £1 shares fully paid. Cash and Treasury bills, £11,525; loans and good debts, £29,900; current liabilities, nominal. The Asp mine interest is under option to a wealthy tributing syndicate, and will probably be sold at a price which will add largely to the company's liquid resources. The Falcon mine-holding of 65,380 shares is believed to be of great potential value. The next report of that company will be issued shortly, and the approximate results for the year to June 30, 1919, have been officially reported as giving: Fine copper, 2,967,463 short tons; gold, 33,597,487 oz.; silver, 68,791,721 oz.; and for the five months ended November 30, 1919: Fine copper, 1,197,903 short tons; gold, 13,571,648 oz.; silver, 28,605,278 oz. The large increase in the market price of all three metals should enable the company to show a very satisfactory profit for the above periods. In view of the large interest held in Falcon Mines, Ltd., the directors have secured permission for Lieut.-Colonel Harry H. Johnson, M.I.M.M., etc., to make a thorough examination property.

Mines as Profit Earners.

In a report issued by Sir Lionel Phillips, Controller of the Department for the Development of Mineral Resources in the United Kingdom, some very valuable remarks occur. The report says: "In all mines earning profits the amounts distributed to proprietors as dividends or profits consist not only of income, but include the return of capital as well. Thus when a mine is worked out, the proprietors suffer not only a loss of income, but, beyond the break-up value of their equipment, have none of their capital left. To tax mining profits on this basis is to tax capital as well as income and to differentiate unfairly against persons who invest in mines. Individual proprietors cannot be protected against improvidence, but limited liability companies might be encouraged to set aside each year out of profits sums estimated as sufficient to redeem the capital during the life of the property, so that participants would find their capital intact when profits are no longer earned. The case is not one for the application of compulsion, because some mines spend initial capital which is never recovered, and many others, after enjoying a limited career of prosperity, meet with adversity. Sometimes funds providently set aside for a rainy day are expended and resuscitate the waning fortunes of the mine. Sometimes they are spent in vain. Hence the uncertainty as to length of life renders it impossible to make reliable calculations for the assured accumulation of the capital when the day of extinction arrives. In sedimentary deposits, however, in particular, the husbanding of an annual proportion of the profits earned must be the means of making the desirable redemption. But though the intricacies of mining may render compulsion inconvenient or even impossible, the State should look with favour on the practice and reserve funds so derived should not be taxed. Similarly the tax gatherer should not levy toll upon sums spent out of profits in development. The general effect of such a course is to limit development and induce owners to distribute as much money as possible. The policy is short-sighted as well as unjust. Mining is notoriously a hazardous enterprise. Those who embark their savings in search of treasure, concealed by nature in every imaginable form, in a great variety of rocks, in wide and narrow seams, variable in thickness, in formations that are often fantastically torn, fractured, and intersected by plutonic dykes, sometimes metamorphosed, the very nature of the contents being liable to alteration in certain cases, as in Cornwall, where copper changed to tin, are pursuing a very elusive prize, and often draw a blank. Prizes, it is true, are sometimes great. The point worth emphasising is the effect upon mining as a business. It is a direct encouragement to regard mining enterprise as a gamble rather than an industry."

* * * *

The Natal Coal Trade.

The total coal output in Natal for January was 206,507 long tons as compared with 206,512 tons in January, 1919, and represents a decrease of 15,858 tons on the December output. The total shipped during the months of November, December and January amounted to 90,369, 124,905, and 109,508 tons respectively, the last figure comparing with shipments of 96,310 tons in the corresponding month of the previous year. According to the Standard Bank monthly review, colliery agents report that much greater export would be possible if freight were more readily obtainable. Coaling orders have been satisfactory but transport shortage has led to the cancellation of some orders for export, and ships requiring bunker coal have been delayed. The Natal industry is again faced with increased costs as the result of further demands by employees for reduced working hours and increased pay. The sales of coke still continue considerably below the productive capacity of the various coke works in Natal.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

DIAMOND CUTTING.

Regulations Under the Act.

The last issue of the Union *Government Gazette* states that the Governor-General has, under the powers vested in him by Section 6 of the Diamond Cutting Act, 1919 (Act No. 38 of 1919), been pleased to make regulations, which include the following: —

1. For the purposes of Act No. 38 of 1919, all diamonds shall be classified into the following four mutually exclusive classes:—

(a) Polished diamonds comprising diamonds which have been completely polished;

(b) Partly manufactured diamonds, comprising diamonds which have been subjected to one or more of the operations of cleaving or sawing or cutting or polishing, but not to an extent sufficient for them to be regarded as polished diamonds;

(c) Rough diamonds, comprising diamonds which have not been subjected to any of the operations of cleaving, sawing, cutting, or polishing;

(d) Fragments comprising portions of diamonds separated from the main stone in the course of manufacture, and of so irregular a shape and small a size as not to be suitable for sawing, cutting, and polishing into separate stones;

provided that if any question arises as to the class in which any diamond should be included, the decision of the Chief of the Diamond Detective Department in the Province in which the factory or business premises of the licensed diamond cutters are situated, or of such officer as may be appointed in that behalf by the Commissioner of Police, shall be final and conclusive.

Cut diamonds shall comprise diamonds on which the operation known as cutting has been completed, and shall be included in the class of partly manufactured diamonds.

Unpolished diamonds shall comprise all diamonds other than polished diamonds, and shall include partly manufactured and rough diamonds.

2. Every licensed diamond cutter shall keep a true and correct register, drawn up in the Form "A" set out in the schedule to these regulations, of all his dealings in and cutting of diamonds, in which he shall enter or cause to be entered within 24 hours of every transaction, receipt, or sale:—

(a) The dates of all purchases, sales, and receipt of diamonds;

(b) The names and addresses of the consignor, seller, broker, and owner;

(c) The total weight and price of each parcel, particulars of the locality or property in which the diamonds were found, and, in cases of receipts other than purchases, the market value of the diamonds shall be stated;

(d) The weight and value of diamonds polished during each day;

(e) The weight and selling value of polished, or partly manufactured, and of rough, diamonds, and of fragments resulting from his own diamond cutting operations, sold, exported, or disposed of, with the names and addresses of the persons to whom so sold, exported, or disposed of; in cases of disposals other than sales the market value shall be stated;

(f) The weight and value of polished, or partly manufactured, and of rough, diamonds, and of fragments resulting from his own diamond cutting operations in hand on the last day of each month.

(g) In all the above entries there shall be separately specified any stone valued at £300 or over.

3. Every person required by this Act to keep a register shall within three days after the expiration of each calendar month forward to the Chief of the Diamond Detective Department in the Province in which the factory or business are situated, or to such officer as may be appointed in that behalf by the Commissioner of Police, a true copy of such register for the previous month, together with a solemn declaration of the correctness thereof, and shall also produce and exhibit such register to any such officer whenever its production may be required.

4. The licence of a diamond cutter shall be in the Form "B" set out in the schedule to these regulations.

5. Every applicant for a diamond cutter's licence shall, together with two sufficient sureties, enter into a recognizance in the Form "C" set out in the schedule to these regulations before the Magistrate of the district in which he intends to carry on the diamond cutting business.

6. It shall be a condition of every diamond cutter's licence that the holder shall have an office or place of business at some place to be described in his licence, and shall have affixed in some conspicuous place on the outside of and over or by the side of the outer door of the place in which he has such office or place of business his name at full length (or, where there are partners, the name and style of the firm or partnership), and after such name or style the words "Licensed Diamond Cutter"; and that such name or style and such description shall be publicly visible and legible in letters at least two inches in length.

7. It shall be a condition of every diamond cutter's licence that he shall not change his office or place of business at which he is licensed to carry on his business to another place unless the Maigstrate of the district shall endorse on the licence a certificate that such licence is transferred to the place to which such diamond cutter desires to change his office or place of business.

8. It shall be a condition of every diamond cutter's licence that he shall not have any interest, direct or indirect, in the business of any person licensed as a dealer under any law relating to trading or dealing in diamonds, nor shall he permit any such person to have any interest, direct or indirect, in his business of a licensed diamond cutter.

9. The registration of any persons employed by a licensed diamond cutter in cutting, sawing, cleaving, polishing, or altering in any way, diamonds, shall be effected with the Chief of the Diamond Detective Department in the Province in which the licensed diamond cutter's factory or business premises are situated, or with such other officer as the Commissioner of Police may appoint for the purpose. If any person to be so employed is so registered, there shall be issued to him a certificate in the Form "D" in the schedule to these regulations.

It shall be a condition of every such certificate that it is liable to be cancelled by the Chief of the Diamond Detective Department in the Province in which the licensed diamond cutter's factory or

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 23 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record.*

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

business premises are situated or by such officer or by such other officer as the Commissioner of Police may appoint for the purpose of

a) The employee has been convicted of a statutory offence:

(b) The employee is an associate of bad characters,

(c) The employee fails to keep a true and correct record of all diamonds received from and returned to him to the licensed diamond cutter as required by Regulation No. 14.

Any person aggrieved by a refusal to issue such a certificate or by the cancellation thereof may appeal to the Magistrate of the district who may confirm or reverse the refusal or cancellation or order a certificate to be issued or withheld.

10. In cases where the provisions of section three of Act No. 38 of 1919 are not being utilised to effect a supply of diamonds to a licensed diamond cutter, the Magistrate of the district in which the licensed diamond cutter's factory or business premises are situated may issue a permit in the Form "E" set out in the schedule to these regulations to any licensed diamond cutter to purchase any rough, partly manufactured, or unpolished diamonds required by him in his trade, provided that the licensed diamond cutter shall only purchase such diamonds from licensed diamond dealers and others legally entitled to sell such diamonds in his office or other places where dealings in diamonds are authorised by law.

11. It shall be a condition of every licensed diamond cutter's licence that he shall not receive any diamond or diamonds for manufacturing or any other purposes from any person or persons who are not in lawful possession of such diamonds.

12. It shall be a condition of every licensed diamond cutter's licence that he shall not sell any rough, partly manufactured, or unpolished diamonds, or export or sell any fragments resulting from his own diamond cutting operations

(a) Unless he shall first have exhibited them to the Chief of the Diamond Detective Department in the Province in which his factory or business premises are situated, or to such officer as may have been appointed in that behalf by the Commissioner of Police;

(b) Nor until he has obtained a permit in the Form "E" set out in schedule to these regulations from the Magistrate of the district in which the factory or business premises are situated. Such Magistrate shall before issuing the permit have the sanction to do so of the Chief of the Diamond Detective Department or such officer as may have been appointed in that behalf by the Commissioner of Police.

13. It shall be a condition of every licensed diamond cutter's licence that his character, conduct, and general behaviour shall not be such as to render him a person by whom it is undesirable, in the opinion of the Minister, that a licence should be possessed.

14. It shall be a condition of the registration certificate of every registered employee who handles diamonds that he shall keep a true and correct record of all diamonds received from and returned by him to the licensed diamond cutter.

15. Any commissioned officer or non-commissioned officer of police may enter, inspect, and examine at all reasonable times any licensed diamond cutter's works and premises and inspect his diamonds and such registers as are required to be kept under this Act.

16. Any person contravening any of the provisions of the aforegoing regulations or any conditions of a licence or certificate or permit thereunder shall be guilty of an offence and liable on conviction to a fine not exceeding five hundred pounds and to a further fine not exceeding twenty pounds for every day during which the contravention continues, or to imprisonment without the option of a fine for a period not exceeding six months, or to both such fine and imprisonment.

Then follow the form of licensed diamond cutter's register, cutter's licence, recognizance under the Diamond Act, certificate of registration of employee, and the form of permit to purchase diamonds.

PERSONAL.

Our correspondent at Postmasburg advises that the Standard Bank have opened a branch there.

* * * *

Mr. H. A. G. Jeffreys is the new Secretary of the Chemical, Metallurgical and Mining Society.

* * * *

Mr. H. Warington Smyth, Secretary for Mines, has returned to duty after a trip to the States, where he represented the Union Government at the International Labour Conference.

* * * *

In order to keep the Association of Mine Managers in closer touch with the proceedings of the Executive Committee of the Chamber of Mines, the President of that Association has been invited to attend Executive Committee meetings of the Chamber.

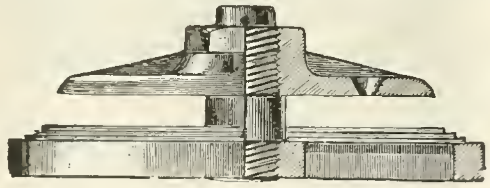
Zaaiplaats Tin.

The results for the month of February, 1920, were as follows: Mill ran 5 days; concentrating plant ran for 18 days on accumulated product; concentrates won, 20 tons; estimated profit for the month, £1,573 2s. 11d.; capital expenditure, £1,131 16s. 3d.

Swaziland Tin.

The following are the results of the operations of this company for the month of February, 1920: Concentrate recovered, 29 long tons; estimated profit (taking tin at £360 per ton), £4,311; add adjustments in respect of previous shipment, £50; total profit, £4,361.

KINGHORN'S PATENT METALLIC VALVES
FOR
PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.
SOLE SOUTH AFRICAN AGENTS:
GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."

ASBESTOS
HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Business Maintained but not so Good—Trade Finance Gold down Again.—Timber and Building Material—Iron, Steel and Machinery—Oils and Colours—Progressive Ploughing—Trade Notes.

According to the manager of a builders' hardware establishment, although business is fairly maintained it is not as good as last month. Prices are always on the increase as every shipment arriving from England shows advance. Notwithstanding a wave of uncertainty his firm keep on indenting as usual, as no one can tell what of the happenings when the goods are due to arrive in six or nine months' time. So far there is no indication of prices receding during the present year, and in any case people wishing to do the business must have well assorted stocks. In the meantime, he concluded, we are skating on thin ice.

A commercial broker confirmed, remarking that business was not so good, owing to the scarcity of oversea stocks in many essential lines. The manufacturers were not able to execute the indents in consequence of the congestion of orders and the great scarcity of raw materials. Many of our merchants have orders placed and accepted for six, nine, and twelve months without any idea as to when deliveries will take place.

TRADE FINANCE.

One feature of paramount importance is that the price of gold has fallen from £6 7s. 8d. to £5 7s. 2d. per ounce, which is reflected in the American Exchange being up 1s., thus making the English pound worth 15s. in New York instead of 14s. Up to the present the value of gold has gone hand in hand with the variations in the American Exchange, but that can hardly be the one and only cause, as the Indian and other demands have to be reckoned with. As for example a merchant's representative in Johannesburg has received a letter from an Indian merchant, asking if he could arrange to purchase gold (in a legitimate manner) and transmit it to India through the banks. It was an interesting letter, as it stated that much of the gold banked in India was in bars of two pounds in weight and mostly have labels of Australian banks. The representative declined the business, as there is no free dealing in gold in Johannesburg, as the mines send it direct to London for sale. Every merchant and every responsible man in Johannesburg knows the importance of gold values to the Rand, because if gold recedes more and more, many of the lower grade mines will be in jeopardy of closing. Obviously there is very much guess work as regards the price of gold in the future, but if one could only keep it at about £5½ per ounce it would enable us to open out business again with America at even 4 dollars per British paper pound. The shipping companies say that the financial problem for sending produce, wool, asbestos, &c., away from South Africa to London and oversea, must be easier, as all the Mail boats get cargoes from and to England. At present there are not superabundant cargoes, but the position is better and seems likely to improve. The betterment has been brought about presumably by going outside the banks in the matter of exchange, as one Johannesburg firm alone is known to have £150,000 cash in London, and there must be others with varying amounts. This was exemplified by a shrewd merchant bartering over the telephone as to the best premiums he could get for transmitting some thousands in cash to London, but so far (Thursday) the best he could do was £4¼ per cent. or £42 10s. 0d. premium per thousand pounds. The fact is that there are many traders in Johannesburg with ample funds who can do much on their own financing without the aid of their bankers, with the present demands for buying rates of 6 per cent. and selling rates at 4 per cent.

TIMBER AND BUILDING MATERIALS.

The feature is the shortage of glazed sanitary pipes. One firm which deals very largely in these has not one on hand, and is still waiting for an order which was placed three months ago. It appears that our Transvaal factories are very full up with orders, which are taken in turn, as their stocks are drawn upon from all parts of South Africa. Porcelain baths and sanitary fittings are scarce, and a lot of work is being held up for material and the pipes previously referred to. Steel ceilings are 80s. a square, as compared with 35s. before the War. The demand is quite steady considering the competition with beaver boards and similar compositions. All kinds of locks and hardware furniture for builders are quite plentiful, with a better assortment than was the case 12 months ago. Obviously substitutes have to be taken, but those as a rule can be obtained. Deals are 1s. 10d. to 2s., according to length, but with a scarcity of 3 x 9 solids; floorings, 10d. to 10¼d.; ceilings, 7d. to 7¼d. All these are slightly higher on the strength of the increased costs of new shipments, and these costs are likely to be advanced on account of the shipping charges owing to the high price of bunker coal. Imported doors are still very scarce, as well as all kinds of windows, doors and builders' joinery generally. The local factories are more than fully engaged, and are competing well with the coast. The fact is that any little difference that might be in evidence is brushed on one side, providing that the manufactured material can be had. Oregon pine is exceedingly scarce as America is not being drawn upon in a general way, because of the exchange. When pitchpine can be had the price is anything up to 11s. 6d. a cube. The building trade is so active that it is more difficult than ever to obtain bricks, and perhaps it is even more difficult when the bricks are obtainable to get the necessary cartage.

IRON, STEEL AND MACHINERY.

Business has been quieter in the bar and steel trade in consequence of the town shops being on strike. These strikes are of such every-day occurrence that one hardly hears about them unless one happens to come across those concerned.

Hopes are entertained that the men will be at work again by Monday next, as it is understood that the employers will give the wages required but not concede the lesser hours asked for. The feature of the week has been the price of barbed wire, as there is a shortage here,

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7in.)

COULD PRODUCE

Rounds and Squares (to 6in.), Channels, Joists, Tees, Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

“SHEELEY”
TUBE MILL
LINERS.

THE EFFICIENT
LINER.

Sole Selling Agents:
RINTOUL & DAVIS,
23, Cullinan Buildings,
JOHANNESBURG.

and the agricultural people are giving big orders for fencing purposes. The price is 53s. 6d. to 55s. for 65 lb. coils, and 60s. for 93 lb. coils, which is almost double pre-War prices. Fencing wire, number 8 gauge, is 47s. 6d. per 100 lbs. American picks have advanced to 75s. per doz., and the hickory handles to 40s. Drill steel, 7½d. lb.; hollow, 11d.; tool, 1s. 6d. lb.; imported mild steel, 36s. 6d. to 39s. 6d.; wire nails, 52s. 6d. to 65s., according to the sizes, the smaller ones being the dearest. Shovels, American 65s., English 75s. per doz. Wheelbarrows, 75s. each.

OILS AND COLOURS.

Turpentine is still the great feature, and it is almost impossible to obtain a reliable quotation, but £9 to £10 is mentioned as the price one would have to pay for 2—4's wherever it was possible to pick up a stray case. It is anticipated that the cost to land new shipments, including the exchange, will be £11 for two 4's. Linseed oil, boiled, 125s. to 130s. for 24's, and raw 120s.—not too plentiful. White lead, 90s. to 100s. per 100 lbs., and 1s. to 1s. 3d. for smaller quantities. Castor oil is very scarce and dear; first grade 120s. to 125s. two 4's; second grade, 110s. to 115s. American salad oil, 155s. to 160s. for two 4's; South American, 130s. and South African 115s. and 120s. A consignment of olive oil has just arrived from France, the first lot for five years. The prices are: one gallon tin 35s.; per case of ten 1's, £17 10s.; one dozen reputed quart bottles, 70s.; 5 gallons, 30s. per gallon. According to to-day's value in France the new landed cost in Johannesburg would be 25 to 30 per cent. more. Natal grease, £35 per ton, but only a nominal price for imported, as it is said to be difficult to locate. Tallow, 1s. 6d. to 1s. 7d. per lb. local. Engine oils, 45s. to 47s. 6d. per case of two 4's.

THE IMPORTANCE OF PROGRESSIVE PLOUGHING.

As the Agricultural Show is just upon us a few words in reference to motor tractor ploughing may be desirable. Tractor plouging is a thing that must eventually come more to the front, notwithstanding any prejudices and what is perhaps more the cheapness of native labour and the good old servants of South Africa—the oxen. A very discouraging feature also in connection with farming is the continuance of an old and mistaken idea that ploughing cannot be commenced until the first rains fall. This idea is only natural, as before the rains the ploughing must of necessity be very hard, especially when anything like a consistent depth is maintained. The tractor plough is the very thing required to plough the ground before the first rains fall. It is not maintained that early ploughing would be a panacea for all the ills that beset farming, but it would undoubtedly minimise the risk considerably and exterminate to a great extent the pest which must sit on the farmer like a nightmare. As an alternative a firm is putting on a single-furrow mouldboard plough which can be drawn by oxen and which will no doubt achieve some of the results of the tractor plough.

TRADE NOTES.

It is not a difficult matter to get to England by first-class accommodation, say within a fortnight of booking, by the mail steamers, but other classes are booked up for about two months. It is stated that Australia and Natal will supplement this service in June, when normal pre-War times should be quite resumed. The outlook for the motor industry trade must be excellent, as one of the earliest landmarks in the shape of the old Monaco Hotel has been erased. It stood on four stands, each 50ft. by 100ft., and was in the best position on Marshall Square, which was a great spot in the very early pioneer days. It is understood that a very large warehouse will be erected, chiefly for motor accessories and spares, and will, it is said, contain £100,000 worth of American spares and motor accessories. In connection with foot motoring, a brand new skootamota is being shown in Cary's Eloff Street window, Johannesburg.

"Prospector" writes to the Pilgrim's Rest paper:—

Owing to the premium on gold many prospectors are beginning to get busy, and the pegging of over 350 claims on Graskop suggests that something good has been found. Most probably it is the Sabie Sandstone Reef, and, if this is the case, we may expect payable results to follow. There are also a few out looking for the precious metal in the district. Several have had a look at the "Maid of the Mist," on Erasmus Hoop, but so far "nothing doing." The writer thinks this mine will be worked at a profit some day. Milling operations are about to commence at Tucker's mine on the above farm, and Mr. Stewart, who is in charge, hopes to make good. The writer thinks there will still be some good results obtained from this wonderful leader. The New Chum Syndicate, on the same farm, have struck rich gold on the east of the main dyke, and also on the lower levels on the western side. They have a large amount of dead work to do before they can produce on a decent scale. They are only amongst the smaller leaders at present, but, by the end of the year, they hope to be on the series of large leaders, including the famous Hill's leader—one of the richest gold-bearing leaders ever found in the district. If the present syndicate get it as good on the east as Hill got it on the west of the dyke, they will have no cause to grumble.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4017. Telegrams: "THAINE."

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

Latest Company Registrations.

Courlanders Agencies, Ltd., 75 Commissioner Street, Johannesburg; capital £5,000.

Royce, Ltd., Marklow's Buildings, 144 Market Street, Johannesburg; capital £10,000.

Green's Buildings, Ltd., 32 Aegis Buildings, Loveday Street, Johannesburg; capital £15,000.

Paddy's Market, Ltd., 50a Auret Street, Jeppes, Johannesburg; capital £3,000.

Leonard Dingler, Ltd., 33 Market Avenue, Benoni; capital £5,000.

Duncan Bayne, Ltd., 4 Troye Street, Johannesburg; capital £2,500.

The Crown Bacon and Polony Factory, Ltd., 213 President Street, Johannesburg; capital £1,500.

Albany Brick, Tile and Potteries, Ltd., Ground Floor, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg. capital £40,000.

Symons Power Cutter and Sugar Cane Thrasher Syndicate, Ltd., 203 Stock Exchange Buildings, corner Fox and Holland Streets, Johannesburg; capital £1,600.

The Western Transvaal Real Estate Trust, Ltd., 20 Monument Street, Krugersdorp; capital £2,000.

The Union Baling Wire Company, Ltd., 30 Portland House, Commissioner Street, Johannesburg; capital £100.

Crystal Spring Aerated Water Company, Ltd., corner Miller and Ninth Streets, New Doornfontein, Johannesburg; capital £10,000.

Berea Mansions, Ltd., 34 Sacke's Buildings, Joubert Street, Johannesburg; capital £25,000.

Pretoria Market Hall Butchery Company, Ltd., 6 and 7 Market Hall, Market Buildings, Church Street, Pretoria; capital £1,000.

The British Combined Agencies, Ltd., Dive Buildings, Commissioner Street, Johannesburg; capital £3,000.

Herefords, Ltd., 33 Oceana Buildings, Simmonds Street, Johannesburg; capital £60,000.

Paulines, Ltd., Dive Buildings, Commissioner Street, Johannesburg; capital £7,500.

Dominion Industries, Ltd., 9-11 Loveday House, Loveday Street, Johannesburg; capital £3,500.

Tambootie Tin Syndicate, Ltd., 90 94 Exploration Buildings, Commissioner Street, Johannesburg; capital £5,000.

Harry Smith & Company, Ltd., 111 Malherbe Street, Newtown, Johannesburg; capital £6,000.

Lights, Ltd., 48 Maddison Street, Jeppestown, Johannesburg; capital £2,000.

The Mebani Estate, Ltd., Mine Office, Rooiberg Minerals Development Company, Ltd., Rooiberg; capital £600.

Robinson Building, Ltd., 90-94 Exploration Buildings, Commissioner Street, Johannesburg; capital £20,000.

Paramount Film Corporation (S.A.), Ltd., 7 S.A. Mutual Buildings, corner Harrison and Commissioner Streets, Johannesburg; capital £100.

Mining Scrap and General Ventures, Ltd., 50 Bettelheim Buildings, Simmonds Street, Johannesburg; capital £500.

The South African General Agencies, Ltd., 15 and 15a New Court Buildings, Market Street, Johannesburg; capital £1,000.

Ohio Milling Company, Ltd., 23 Carr Street, Newtown, Johannesburg; capital £300.

S.A. Emmola Company, Ltd., 6 and 6a De Beer Street, Braamfontein, Johannesburg; capital £5,000.

Chad Tshisa Stick Company, Ltd., 37 and 38 Royal Chambers, Simmonds Street, Johannesburg; capital £1,250.

Garrard's Garage, Ltd., 62 Plein Street, Johannesburg; capital £1,000

African Cotton Growers' Corporation, Ltd., 11-17 Trust Buildings, Fox and Loveday Streets, Johannesburg; capital £60,000.

David Subel Brothers, Ltd., 9 Fort Street, Benoni; capital £1,800.

Rance Colly & Company, Ltd., 46 Commercial Exchange Buildings, Main Street, Johannesburg; capital £2 500.

The Kendal United Colliery, Ltd., The Kendal United Colliery, Kendal Station, District Middelburg, Transvaal; capital £8,000.

Rand Clothing Manufacturers, Ltd., 43 City & Suburban, corner Commissioner and Nugget Streets, Johannesburg; capital £10,000.

Florida Bottle Store, Ltd., Stand No. 112, Goldman Street, Florida Township, District Krugersdorp; capital £2 000.

Marmora Mines and Estates, Ltd., 45 Permanent Buildings, Harrison Street, Johannesburg; capital £10,000.

Haak's Garages, Ltd., corner Koch and Pretorius Streets, Pretoria; capital £30,000.

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent.

FOREIGN COMPANIES.

Wakkerstroom Oil Company, Ltd., care F. W. Diamond, National Bank Buildings, Simmonds Street, Johannesburg; capital £200,000.

The National City Bank of New York (South African Branch), Ltd., care F. Cliffe and or J. Dekker, both of Colonial Mutual Chambers, corner Fox and Loveday Streets, Johannesburg; capital £100,000.

Australian Dairies, Ltd., care Harry Silson, 88 90 Glencairn Buildings, Joubert Street, Johannesburg; capital £10,000.

The South African Toilet Requisite Company, Ltd., care B. P. Davis, Pritchard and Joubert Streets, Johannesburg; capital £1,000.

Bronkhorst Lead and Silver Mines, Ltd., care Francis Thomas, 159-160 Stock Exchange Buildings, Johannesburg; capital £16 500.

The South African Board of Executors and Trust Company, Ltd., care S. G. Bain, Realty Trust Buildings, Simmonds Street, Johannesburg; capital £1,000,000.

Kenhardt Exploration Association, Ltd., care C. de G. Canisius, 9 10 Steytler's Buildings, corner Market and Loveday Streets, Johannesburg; capital £4,250.

The Lonely.

The following are particulars of output of gold, etc., from the Lonely Mine for the month of February, 1920: Mill ran 637 hours; crushed 4,300 tons; fine gold recovered, 2,249·486 ozs., value £9,465 16s. 3d.; slimes treated, 4,300 tons; fine gold recovered, 3,294·631 ozs., value £13,865 15s. 8d.; total fine gold, 5,544·117; total value, £23,331 11s. 11d.; profit, £10,862 7s. 11d.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

New Kleinfontein Company, Limited.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the TWENTY-FOURTH ORDINARY GENERAL MEETING OF SHAREHOLDERS in the above-named Company will be held in the Board Room, Fourth Floor, National Bank Buildings, Simmonds Street, Johannesburg, on WEDNESDAY, the 26th day of May, 1920, at 11 a.m.

BUSINESS:

1. To receive and consider the Statements of Account and the Reports of the Directors and the Auditors for the year ended 31st December, 1919.
2. To elect two Directors in the place of Messrs. W. J. Gau and Edw. H. Read, who retire in terms of the Company's Articles of Association, but who are eligible and offer themselves for re-election.
3. To appoint Auditors for the ensuing year, and to fix the remuneration of the retiring Auditors, Messrs. F. W. Diamond & English and C. L. Andersson & Co.
4. To transact all such other business as may, under the Articles of Association, be transacted at an Ordinary General Meeting.

The Transfer Register of the Company will be closed from the 25th day of May, 1920, to the 8th day of June, 1920, both days inclusive.

Holders of Share Warrants to Bearer desiring to be present or represented at the Meeting must produce their Share Warrants at the places and within the times mentioned below:—

(a) At the Head Office of the Company, National Bank Buildings, Simmonds Street, Johannesburg, at least twenty-four hours before the time fixed for the Meeting.
(b) At the Offices of the Company in London, 208,224 Salisbury House, Finsbury Circus, London, E.C., at least thirty days before the date fixed for the holding of the Meeting.
(c) At the Offices of the Paris Agents of the Company, Crédit Mobilier Français, 30-32 Rue Taitbout, Paris, at least thirty-five days before the date fixed for the holding of the Meeting.

By Order of the Board,

L. S. RAYMOND,
Secretary.

Head Office:
National Bank Buildings,
Simmonds Street, Johannesburg.
19th March, 1920.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] MARCH 27, 1920. [No. 1487.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS. PAGE

Notes and News ... 69

Topics of the Week:

Chamber of Mines' Annuel Meeting ... 71
Vereeniging-on-Vaal ... 73
Chamber of Mines: President's Annual Review ... 75
What's Wrong With the Reef Miner's Lot? ... 76
Shaft Sinking Progress at the New State Areas ... 79
The Year with Brakpan Mines ... 80
The Outlook for Springs Mines ... 82
The World's Oil Supply ... 83
The Question of Deep Boreholes ... 86
Daggafontein: A Year's Development ... 86
The Joint Housing of Rand Scientific and Technical Societies ... 87
The Week in the Sharemarket ... 89
West Springs Shaft Sinking Progress ... 91
Correspondence and Discussion: Greig Diamonds: A Visitor's Impression ... 91

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades ... 93
Company Meetings: Ferreira Deep; Wolhuter ... 95

Notes and News

African and Wakkerstroom Oils.

We learn that the option granted by the African Oil Corporation to a well-known English chemico-industrial firm expired some little time ago and that the African Oil directorate are now going ahead independently of any overseas firm with the exploitation of their valuable asset. At the same time reports are in circulation to the effect that an important Natal enterprise is keeping a watchful eye on the property. We understand that development work at the African Oil properties is continuing to give highly satisfactory results. We learn, too, that on the farm Kirkvorserfontein of the Wakkerstroom Oil Company a rich seam has been located and that samples of this are now in Johannesburg undergoing analysis.

* * * *

A New Coal Enterprise.

We are informed that Messrs. Jack Andrew Cohen and Henry Adler have taken over the business hitherto conducted by Mr. J. R. Macduff at Capetown as steamship and colliery agents, coal exporters and bunker contractors, including all Mr. Macduff's coal interests in Natal, which comprise, amongst others, several properties now being opened up under the aegis of an influential group here. A new company is being registered to carry on the business with a capital of £60,000. The board of directors is composed of Messrs. J. Andrew Cohen (chairman), Henry Adler and J. F. Rutherford, and Mr. Macduff as managing director will continue to conduct the company's business in Capetown and coastal ports.

* * * *

Electric Lamp Profiteering.

The report of the sub-committee enquiring into profiteering in the electric lamp industry, finds the existence of a trade combination, including 90 to 95 per cent. of the industry, which controls factors and retailers, fixes prices at all stages, and regulates the output. The report considers standard vacuum lamps, which are now sold to the public at 3s. each, could be sold at 2s. each, and still leave a satisfactory working profit. Moreover, in the sub-committee's opinion, trading discounts are considerably higher than necessary, and should be reduced. The report further states that one and a quarter million "half-watt" lamps sold to the public in 1919 at 12s. 6d. each, were purchased in Holland by a trust at about 3s. each. The selling of these lamps at 8s. each would have left an ample margin of profit. The report finds there is a possibility of an international combination, comprising British, Dutch and American manufacturers, who would be able to dictate prices over a considerable part of the world. As a result of the sub-committee's findings, the report recommends that the operations of the existing combination should be subjected to public control.

* * * *

### Wankie Colliery.

Owing to the influenza epidemic the Wankie Colliery Co., Ltd., of Rhodesia, did not make quite so large an output in the year ended August 31 last as in 1917-18. However, the net profit is only £2,500 down at £65,300. The dividend is again made up to 1s. per 10s. share by the recommendation of a final 6d., while the carry forward will be increased to £15,400, against under £7,000 brought in. The coal reserves already proved are estimated at 5½ million tons, an increase of over 300,000 tons on the year. With one exception, coal of good width and value is stated to have continued to be exposed everywhere, the deposit being of average thickness and maintaining its high commercial value. The necessity of opening another colliery has been under discussion for some considerable time. Accordingly during the past year operations were undertaken to have the section of the coalfield north-west of the colliery surveyed and boreholes put down to prove the coal seam. Several boreholes and shafts have been completed, and the information obtained is stated to have proved the value of the new area. The boreholes sunk on the selected site show the coal to be less than 200 feet from the surface.

Postmas Diamonds.

We understand that the directors of the Postmas Diamond venture have secured the services of Mr. Tom Dilks as manager of their mines—there are two of them, Nos. I. and II. Mr. Dilks is well known as one of the oldest and most experienced diamond mine managers in South Africa. He has managed at different times the Jagersfontein, the Lace, and the Monteleo mines; and he has a reputation for efficient and economical mining. The Postmas people are to be congratulated on the appointment.

* * * *

Dagga Options' Extension.

Regarding the Dagga four-year and five-year options to bearer, the directors state that, taking into consideration the fact that development, in consequence of the inability of the company to obtain suitable plant whilst War conditions prevailed, could not be expedited as rapidly as originally anticipated, they have agreed to extend the four- and five-year options, expiring on the 27th March, 1920, and 27th March, 1921, each for a period of six months, viz., to the 27th September, 1920 and 1921, respectively.

* * * *

Rhodesian Mining Questions.

The latest report of the Rhodesia Chamber of Mines states that, taking into consideration the greatly enhanced cost of production which had burdened the industry during the past few years, the Chamber suggested that the B.S.A. Company might very fairly waive the royalty on premiums on gold sales, but it is regretted that the directors have stated that they are not prepared to accede to this proposal. With regard to the increase in the price of coal taking effect as from 1st February current, it appears after careful enquiry that the increase is in accord with the enhanced cost of production, and until the latter can be reduced no hope can be held out for any reduction. The Chamber has been advised by the local banks that in view of the present exchange position between South Africa and London, necessitating an increase in buying rates of exchange for bills on London, a special rate of exchange of 3½ per cent. on the proceeds of native gold purchased at 77s. per standard oz. will be levied from and after the 20th February. The existing arrangement for the accounting of any surplus realised over 78s. per standard oz. will continue, such surplus being subject, as now, to deductions of insurance and freight, and the current rates of exchange at date of realisation.

* * * *

Anglo-French Land.

A meeting of the Anglo-French Land Company of the Transvaal, Ltd., has been held for the purpose of considering a proposal to refund to shareholders a portion of the capital of the company, which at present stands at £80,000 issued, divided into 80,000 shares of £1 each, together with 20,000 shares in reserve. It was now proposed to cancel the reserve shares, and to refund 5s. per share on the issued capital of 80,000 shares, thus leaving the capital of the company at £60,000, divided into 80,000 shares of 15s. each. Colonel Dalrymple, who presided, said the company was originally formed on August 21, 1895, to take over the assets of the Estates Company (S.A.R.). Ltd. The assets acquired were 43 farms and 24 town erven. The farms were acquired principally for their mineral possibilities. The company had, from time to time, done prospecting work on certain farms, but no discoveries of importance had been made. In earlier years there was little demand for the farms, but of later years there had been an increased demand, for ranching purposes, for farms in the Northern Transvaal, where most of the company's farms are situated. During the last five or six years the agricultural rights of 13 farms, totalling 30,366 morgen had been sold for a total sum of £19,218. The mineral rights had in each case been retained by the company. The balance sheet showed a debit on the profit and loss account of £12,770. This amount was the net excess of expenditure over revenue during the 24 years of the company's existence. The cash in hand at date amounted to £26,675, and the directors considered it advisable to refund to shareholders £20,000 at the rate of 5s. per share. The company intended to continue its present policy of selling the surface rights of the farms, and when further funds make it possible it was intended to again reduce the capital and make a further distribution to shareholders.

* * * *

Bolshevism and Mine Production.

Mr. F. J. Jones, manager of the copper works at Kyshtim in the Ural region of Russia, gave to the New York section of the Mining and Metallurgical Society recently, an interesting and illuminating description of the changed conditions in the district since the revolution in Russia. During the brief Kerensky regime there was little alteration, the workmen, though jubilant at their newly-found liberty, continuing industrious and friendly. Demands were made for higher wages and improved conditions, but the requests, which were conceded, were amicably preferred. As Bolshevism reared its ugly head, however, the workmen's demeanour passed rapidly through the stages of a manly independence to a brutal insolence, and repeated demands were made for higher pay, the employers not being allowed to discuss the terms, the men intimidating the mineowners by threats to destroy the works. Naturally, production dwindled, falling from a thousand tons of copper ore per month to three hundred, till the stage arrived when expenditure upon labour was in excess of income. The Bolshevik "Government" at Petrograd remitted the paper roubles to make good the deficit, being in need of copper. The management of the mines were reduced to a form of slavery, being informed that it was their business to direct operations, and that they would not be allowed to leave the mines. Finally, the supervisors induced Petrograd to cease sending money; and the cessation of financial supplies led the men to abandon work without destroying the plants. They sent a commission to Petrograd to inquire into the stoppage of funds; and here this interesting chapter of Russian proletariat progress in economics halts for the moment.

* * * *

The Position of the Jupiter.

Dealing with operations at the Jupiter during 1919, Mr. O. P. Powell, the acting consulting engineer, writes: "A comparison of the results obtained during the last four years is as follows:—1916: Tons milled 269,900, yield per ton 22s. 1·247d., costs per ton 19s. 1·091d., profit per ton 3s. 0·156d., total working profit £40,661. 1917: Tons milled 286,900, yield per ton 21s. 4·370d., costs per ton 19s. 4·660d., profit per ton 1s. 11·710d., total working profit £28,343. 1918: Tons milled 266,500, yield per ton 23s. 8·407d., yield per ton 23s. 5·506d., profit per ton 2·901d., total working profit £3,221. 1919: Tons milled 275,900, yield per ton 24s. 4·452d., costs per ton 24s. 1·884d., profit per ton 2·568d., total working profit £2,952. The above strikingly indicates the gradual increase of costs from 19s. 1·091d. per ton in 1916, to 24s. 1·884d., or an increase of 5s. 0·793d. per ton milled. The greater costs are due chiefly to the increase in the cost of white labour, the cost of stores, the decreased efficiency of native labour and the additional expenditure consequent on the pressure now experienced throughout the mine necessitating more support in the form of packs. The gold premium during the year amounted to £22,438, or an average of 1s. 7·518d. per ton, and accounts for an increase in the yield of 8·045d. per ton above that of 1918. It will thus be seen that the value of the yield, based on the price obtainable in 1918, is lower by 11·473d.; and working costs are higher by 8·378d. per ton milled. The ore reserves are estimated at 588,000 tons of fully developed ore of an average value of 5·82 dwts. per ton over a stoping width of 59 inches, and 63,000 tons of partially developed ore of an indicated value of 5·64 dwts. over a stoping width of 67 inches. The above reserves indicate that no increase in the yield of gold per ton can be expected during the ensuing year, and unless there is a material reduction in high costs now prevailing, the production of profits will depend upon a continuation of the gold premium.

TOPICS OF THE WEEK.

THE CHAMBER OF MINES' ANNUAL MEETING.

THE increasing number and growing complexity of the problems now confronting the mining industry were reflected in the valedictory address of Sir Evelyn Wallers at the annual meeting of the Chamber of Mines on Monday. Some of the chief points are reproduced in another part of this issue, and a full report will be found in *The Star* of that day. The Chamber of Mines will, doubtless, this year follow its usual custom of printing and circulating the President's address, and seldom, if ever, has that course been so fully merited by the intrinsic excellence of the treatment and essential importance of the subjects treated. As a fact, the presidential address on this occasion was much more than the customary review of the year from the chief spokesman of the industry. It was at once an explanation and elucidation of the position of the industry *vis-a-vis* the novel and extraordinary conditions resulting from the War, and an account of the outgoing President's own policy and stewardship during the years of the great conflict, which synchronised with his tenure of office. Naturally, the first and main portion of the address was devoted to the gold premium, so-called, and to its efficacy in saving the low-grade mines. With the price of gold dropping away almost daily from the high figue it reached a little while back, the warning embodied in the President's address becomes increasingly urgent; and should it be disregarded by the Government and labour the result can only be disaster. There is nothing of the academic, discursive or superfluous in this portion of the address. Every statement is one of sane and sober fact, " fool-proof " against reluctant unbelief. Equally definite, clear-cut and unequivocal is the bold adoption and advocacy of the Strakosch expedients to solve our present exchange and currency problems. Here Sir Evelyn is on sure ground, and out of the welter of words that has raged round these questions of late he has the courage and the vision to grasp and adhere to the businesslike and convincing proposals so opportunely advanced by Mr. Strakosch. The powerful backing of the Chamber will, we believe, go far to strengthen the hands of the Government in their contemplated programme of currency reform despite the ululations, gradually, it is true, growing fainter, of the *Cape Times*, and the inchoate ravings of the *Rand Daily Mail*. If the presidential address dealt with nothing more than these two matters—the gold " premium " that has saved temporarily the low-grade mines, and the urgent necessity for currency reform on the lines of the Strakosch suggestions—it would be of extraordinary value and importance. But it dealt with a number of other things as well. Of these, the more important were the Low Grade Mines Commission, native labour and legislation, and industrial policy. The recent native strike, Sir Evelyn, we are glad to see, agrees with Mr. Taberer in attributing to the unique imitative propensities of the native. In this case certainly the native aped the white man to his own disadvantage. Sir Evelyn is, of course, all in favour of the speedy carrying out of the recommendations of the interim report of the Low Grade Mines Commission. As regards the recommended importation of labour from north of latitude 22 degrees south, Sir Evelyn is preaching to the converted, the Native Affairs Department having apparently withdrawn its opposition and the *Rand Daily Mail* having during the week made a tardy surrender to commonsense and the facts, salving its conscience for the concession by refusing or failing to understand the Chamber's proposal for currency reform. Nothing now stands in the way of the necessary importation of native labour from the areas in question but the natural inertia of the Government, which it is to be hoped the redoubled efforts of the Chamber may now overcome. The removal of the colour bar, or, to put it less bluntly, " the meeting of the legitimate aspirations of the native," evoked some mild support from Sir Evelyn, who seems content for the moment to let sleeping dogs lie, but Sir Lionel Phillips, who followed, stated the case for the redress of this native grievance very boldly and with conviction born of the onlooker's insight into conditions. Sir Evelyn entered another strong protest against what our American friends call the " railroading " tactics adopted by the Legislature towards the industry; and here again Sir Lionel Phillips capped the President's smooth words by frankly advocating that the industry should send its own recognised representative to Parliament. Ever since the days when Sir Lionel himself, the late Sir George Farrar and Sir Drummond Chaplin were present in Parliament, it has been nobody's business to speak up for the industry. Rather has it been everybody's apparent delight to kick the unfortunate mines because they had no friends in the House. The thing came to a head in the last " unlamented " Parliament, and we trust and hope that the candid advice offered by Sir Lionel Phillips will be acted upon by the industry when next the opportunity offers. And this brings us to Sir Evelyn's *apologia* for his policy on labour questions, with which he brought his brilliant address to a close. That policy has now had the public blessing of Sir Lionel Phillips; it has been crowned by the promise of what seems to be a period of peace in the industry, and Sir Evelyn can therefore well afford to be indulgent to those—and they were neither few nor uninfluential—who honestly differed from him.

The Geological Society.

The annual meeting of the Geological Society of South Africa was held on Monday in the Council Chamber of the Transvaal Chamber of Mines. In the absence of Mr. J. J. Garrard, president, Dr. A. W. Rogers occupied the chair. In moving the adoption of the report and accounts, the chairman expressed regret that since the annual report was issued they had lost three more members by death, namely, Mr. J. Hennen Jennings, Mr. C. D. Leslie, and Senator Marks. The Council had taken the step of establishing a memorial to the late Mr. George S. Corstorphine, who had been intimately connected with the work of the society for many years. Dr. Rogers in the course of his address showed that in the Union much less than half the country had been geologically surveyed, but it was hoped that great progress would be made during the next ten years. The issue of reports on certain mineralised areas went on concurrently with the geological mapping. Dr. Rogers then applied himself to a discussion of the origin of the escarpment bounding the interior plateau of South Africa; it was shown to have developed through the rivers initiated on a surface of Karroo and cutaceous rocks, having everywhere encountered markedly horizontal and virtually jointed hard rocks in the course of the enlargement. Mr. T. N. Leslie was elected president and Mr. J. J. Garrard, Mr. E. R. Schoch, and Dr. S. J. Shand were elected vice-presidents. Dr. R. B. Young was re-elected hon. secretary and treasurer.

* * * *

International Scientific Research.

The report of the conference held in Brussels last summer, at which the constitution of an International Research Council was finally agreed upon, has been completed and will be published in a few weeks' time. It was agreed that the convention should come into force on 1st January last, provided that at least three of the following countries should have signified their adhesion: Belgium, Brazil, the United States of America, France, the United Kingdom, Australia, Canada, New Zealand, South Africa, Greece, Italy, Japan, Poland, Portugal, Rumania and Serbia. The requisite number of acceptances has been received. The purpose of the council is to co-ordinate international efforts in science and its applications; to initiate the formation of international associations or unions deemed to be useful to the progress of science; to direct international scientific activity in subjects outside the purview of existing international associations; and to enter into relation with the Governments of the adhering countries in order to promote investigations. The legal domicile of the council will be at Brussels, where the general assemblies will be held and the archives kept. Donations and legacies will be received and administered according to Belgian law. The statutes of the Astronomical Union, the Union of Geodesy and Geophysics and the Union of Pure and Applied Chemistry have been approved, and proposed statutes for the following unions have been drawn up:—Mathematics, physical sciences, scientific radiotelegraphy, geology, biological sciences, geography, bibliography and documentation.

SIEMENS BROTHERS

& CO., LIMITED.

CABLES
AND
WIRES.

OVERHEAD LINE MATERIAL
AND
EQUIPMENT.

TELEGRAPHS
AND
TELEPHONES.
MANUAL AND AUTOMATIC.

SIGNALLING APPARATUS,
FOR
RAILWAYS, MINES, SHIPS AND POWER STATIONS.

JOINT BOXES
TAPES, COMPOUNDS, CABLE ACCESSORIES, TOOLS, Etc.

PRIMARY BATTERIES
FLUID AND DRY.
Carbons for Battery Making.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

Established 1858.
OVER 4,000 EMPLOYEES.
Telephone: City 6400 (7 lines).
Telegrams: "Siemens, Woolwich"

HOME BRANCHES:
BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:
CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.
Telephone 1202.
Telegrams: "SIEMENS."

VEREENIGING-ON-VAAL.

An Investigation into one of the Chief Industrial Centres of the Union.

II.—The Union Steel Corporation's Works—How the Enterprise Started and how it has Prospered—Turning Over Scrap Iron for the Mines, the Railways and General Industries—Training Young South Africans for the Iron Trade—Big Prospects with Local Ores in View—The Future Birmingham of South Africa.

In our last issue we commenced a short series of articles on the great industrial enterprises which have been inaugurated at Vereeniging under the auspices of Messrs. Lewis & Marks with a general account of the many-sided activities of the place. This week we propose devoting attention to a consideration of the progress and prospects of one of the various industrial enterprises which are located at Vereeniging—the Union Steel Corporation, which is one of the most important industrial enterprises at work in the Union.

The Coming of an Iron Industry.

Just as Messrs. Lewis & Marks many years ago foresaw the immense possibilities of Vereeniging with its huge reserves of coal and water, so did this firm visualise the eventual development of a large iron and steel industry in South Africa. It is strange but true that this country, despite the existence of huge deposits of iron ore in proximity to railways with immense coalfields and large deposits of flux, has only recently assumed any measure of importance as an iron and steel country. Probably the unfavourable reports of one or two "experts" have had a good deal to do with this tardy development of an iron and steel industry in South Africa. But those opinions have since been denied by other geologists, metallurgists and mining engineers, who are quite as competent to judge as the overseas advisers in regard to the iron and steel industries outlook for South Africa. At any rate, the fact is that iron and steel works are now established in the Transvaal on the Vaal, and there are iron works at Pretoria, Newcastle and Dunswart.

The Union Steel Works at Vereeniging: A General View of a portion of the Plant.

Union Steel Works: An Interior View of a portion of the Main Buildings.

Initial Difficulties.

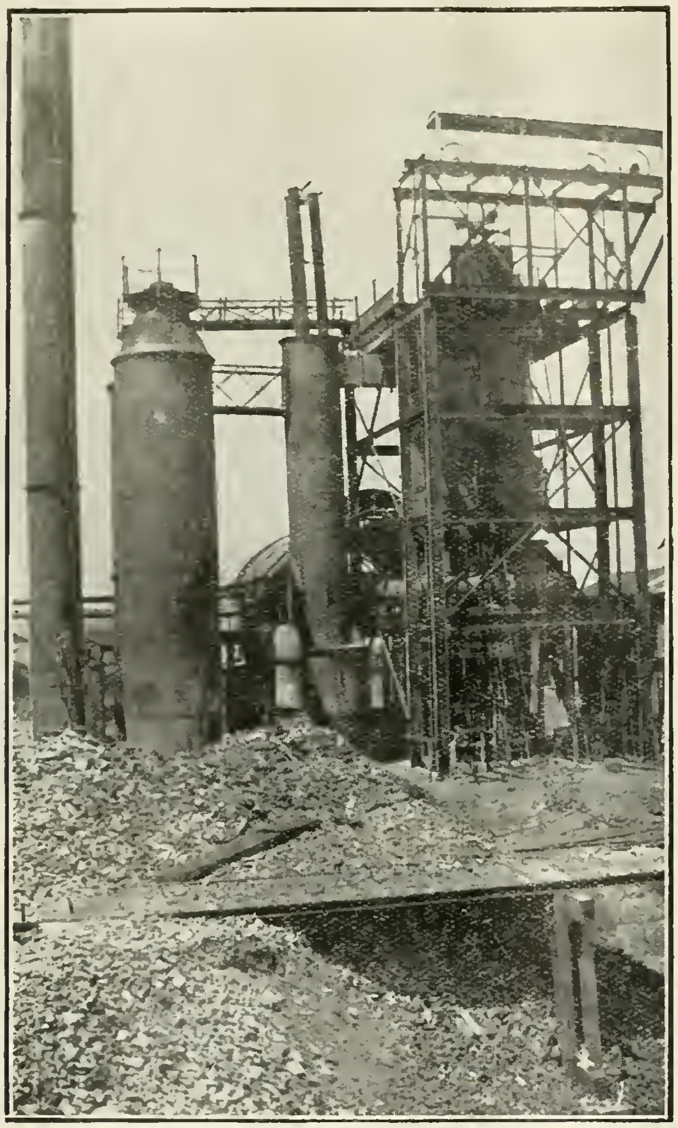
Messrs. Lewis & Marks not only saw that an iron and steel industry in South Africa was bound to come sooner or later, and that it would become a profitable enterprise; they also realised that Vereeniging with its central geographical position and valuable natural resources would be an ideal site for the establishment of a forerunner of this branch of industry. And so a little while before the outbreak of the Great War a start was made with building up of an iron and steel works immediately to the west of the Victoria Falls Power plant and in close proximity to Vereeniging station, the Vaal River and the coalfields. The original proposition was to work up scrap iron and steel into products needed by the mines, the railways and other industries, and up to the present activities at the Union Steel Corporation have in the main been confined to this class of work. But the Corporation has also in view production from the raw ores of the country. One of the photographs accompanying this article illustrates the company's blast furnace. In the foreground of the picture will be observed a large quantity of ores concentrated for experimental treatment. These ores have been drawn from all over the country, from Standerton and Piet Retief, from Rustenburg and the Northern and Western Transvaal, and there can be little doubt that the day is not far distant when Vereeniging will be manufacturing finished steel products from the crude iron ores of the country. In its early pioneer days the Union Steel Corporation had to weather many vicissitudes and to face many disappointments. Public opinion, and some expert opinion too, rather pooh-poohed the idea that a worn-out cocopan could be transformed into, say, a brand new rail. All new enterprises have this period of initial difficulty and general scepticism to overcome. There was a time when the Corporation's managing director worked and ate and slept for weeks at one of the furnaces in course of construction.

Establishment of the Industry.

But gradually initial difficulties were surmounted and as troubles and tribulations slipped away into the background of time the unbelievers became fewer and fewer. The position to-day is that the Union Steel Corporation is one of the busiest and most prosperous undertakings in the Union, and it is certainly going to thrive and flourish and become a very much bigger concern in the near future. The buildings now cover many acres of ground and the heaps of scrap iron piled up all around the plant testify to the fact that anything from an ancient frying-pan to an old worn-out locomotive can be transmuted into the modern requirements of industry at the Vereeniging works. The Corporation is at present melting up about 15,000 tons of scrap iron per year, and there is a very large market of probably over 100,000 tons per annum volume for the company's products. Castings up to 5 tons are being turned out.

MANY PRODUCTS.

The installation of a 3½-ton Herault electric furnace was completed last year, and this furnace has been constantly in operation since then, with considerable success. The steel made has been used in the manufacture of shoes, dies, and high-grade steel castings, for which there is an increasing demand. It has been decided to convert the 10-ton Siemens' open hearth furnace, the first erected at the works, into a 20-ton open hearth furnace. The Corporation will then have two furnaces of this capacity, and the output will be increased materially in consequence. A new annealing furnace and drying stove have been erected, while an additional electric crane has been ordered to facilitate the handling of ingots and materials, the present electric crane being insufficient for the requirements of the works. The directors also recently decided to extend the smelter and foundry buildings by 100 feet to provide floor accommodation for the steel foundry, and proposed additions to the existing plant. The production of finished bars and castings during 1919 showed an increase on that of the previous year, despite some restriction of output during the first three months, consequent on the influenza epidemic. In addition to the ordinary output of castings, a considerable tonnage of shoes and dies has been manufactured and delivered to the mines. There is an excellent demand for the Corporation's products, the high quality of which is well maintained. The Corporation was able to dispose of its output without difficulty, chiefly to the Union Government, mines, and also to other purchasers throughout the Union, Rhodesia, and the Belgian Congo at prices which must be considered fair and reasonable, and during a period when the products manufactured by it were almost unprocurable elsewhere. As to the financial results, it is satisfactory to note that the gross profit on manufacture as shown by the profit and loss account to 30th September, 1919, was £105,339 6s. 9d. The company has a very complete equipment for testing tensile strength and elongation. The coke used is from Vryheid and fluxes are obtained locally.



UNION STEEL WORKS: THE BLAST FURNACE.

(In the foreground of the photograph are Transvaal iron ores with which the Company has been experimenting.)

LOOKING TO THE FUTURE.

The company affords employment to a large number of whites and natives and is gradually building up a trained establishment of young South African iron workers in the country. The ultimate aim of the Union Steel Corporation is to establish a large industry to manufacture from South African iron ores, and there can be but little doubt that in the course of years Vereeniging will become the Birmingham of South Africa.

(To be continued.)

PERSONAL.

Mr. L. Breitmayer is on a visit to the Rand.

* * * *

Mr. Dobson, formerly city engineer of Grahamstown, and subsequently of Vereeniging, has been unanimously elected town engineer of Krugersdorp.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

CHAMBER OF MINES: PRESIDENT'S ANNUAL REVIEW.

Points from Important Address Covering Many Industrial Problems.

The following are some of the chief points in the valedictory speech made by Sir Evelyn Wallers this week at the annual meeting of the Transvaal Chamber of Mines.

Since the 24th July, 1919, we have been able under the new agreement with the Bank of England to market our gold, not indeed to the best advantage, but to considerably increased advantage.

The result of this change has been that during the last five months of 1919 we obtained about £3,000,000 more than we should have obtained had we been restricted to the standard price.

What is of most importance of all to the commonwealth, is that we have been saved from the appalling misfortune, which nine months ago appeared to be inevitable, of having to close down nearly half of the industry, and thereby throw out of employment more than 10,000 European workers.

Gold is not and never can be at a premium. What has happened is not that gold has appreciated, but that the currency for which we sell it has depreciated. The circumstances which have brought to our sorely tried industry a temporary relief, have placed a heavy burden on other classes.

It is impossible to doubt that the "premium on gold" is coincident with the depreciation of currency, which is, broadly speaking, another phrase for "high cost of living," and that they all spring from "decrease in production."

We have had an enormous increase of paper currency, and as the necessary result paper currency has become very cheap. At the same time, we have had an enormous reduction in the production of goods. The natural result is that the prices of goods reckoned in currency have vastly increased.

The Government of the Union has fortunately not had to revert to the insidious expedient of an over-issue of paper money. Great Britain, however, has done so.

When gold returns to its permanent standard value we shall be faced with two alternatives. Either half the industry must be closed down, with the resulting unemployment, or the cost of production, including the cost of labour, must be reduced.

It is to be hoped that the cost of living and commodities generally will fall faster than the premium on gold. Unfortunately, the probabilities are that the reverse will be the case. The position can only be met by carefully thought-out measures.

Any attempt at the sudden introduction of what I think is rather erroneously described as "natural exchange," with its concomitant removal of the prohibition against the export of sovereigns, would have the gravest effects upon the prosperity of South Africa.

Our first object should be to stop the drain of gold, and I have met with no plan for that purpose which appeals to me as so effective and sound as Mr. Strakosch's scheme of issuing Treasury gold certificates.

For every certificate issued the Government should hold a reserve of gold sufficient to redeem the certificate at its face value when gold falls to the standard price.

By this means the country's whole reserve of gold would be safely locked away in the Treasury vaults, secure from the serious loss through illicit export and hoarding which are going on to-day.

It is also desirable to supplement the present inadequate banking system of the Union by the creation of a central reserve bank in which would be deposited all the cash reserves of the other banks.

The functions of such a bank would be to issue notes (which would be its sole prerogative) to rediscount for the other banks the commercial bills already discounted by them and to regulate by its rates the extension and limitation of credit.

The recent rapid and heavy increases in the rates charged by the banks for telegraphic and other transfers from London against our gold, and which have immediately added to our costs at the rate of at least £1,500,000 per annum, have emphasised the importance to this industry, and, indeed, to all industries, of a central credit institution.

With working costs at their present figure 16 of the mines now at work, employing between them, about 5,800 Europeans, will, when gold drops to 100s. per ounce, be making a loss. When it drops to 90s. the number of mines effected will be increased to 28, and the number of Europeans employed to nearly 12,000, and when gold returns to its normal price 31 mines with a total of about 14,000 European employees will no longer pay for working. These figures are for working costs only; no allowance has been made for debenture and similar charges.

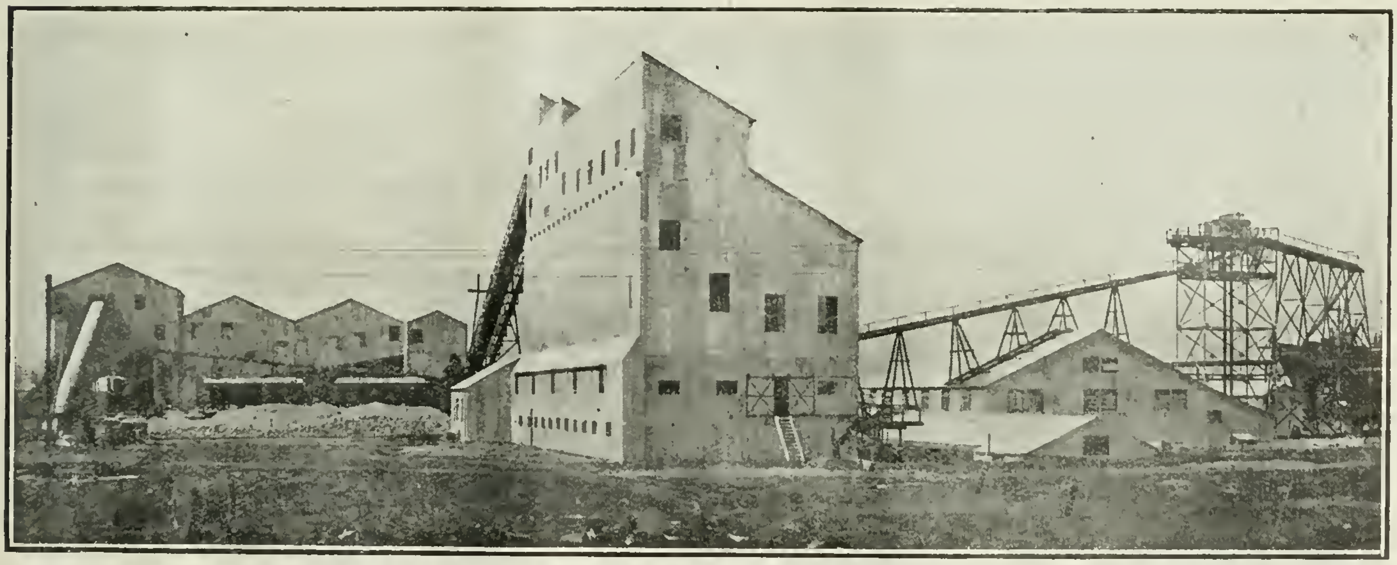
It is well to realise, therefore, that no time should be lost before considering what remedies can be applied when the situation of last June again arises, as arise it must.

The admission of the Native Affairs Department that "the time has been reached when there is not sufficient labour to go round," and the finding of the Low Grade Mines Commission leave the Government without the shadow of an excuse for maintaining the present mischievous and unnecessary prohibition of the employment of natives from north of latitude 22 degrees.

The professed cause of the native strike was the increased cost of living. I think we may take it that the true cause was imitation of the methods of the European employés.

We must not lose sight of the fact that the native will not for ever—nor, indeed, by all signs, for very long—be satisfied with his present position in industry. The Chamber has repeatedly stated its position in this matter. It has no intention of trying to abolish the colour bar so long as that barrier is upheld by the great majority of Europeans resident upon the Witwatersrand. But the maintenance of that barrier constitutes an injustice; and public opinion always, sooner or later, discovers and denounces injustice.

The policy of the Chamber in its dealings with the representatives of the Unions has not been actuated by any consideration of either weakness or strength. What it has done has not been merely on grounds of expediency, or because of pressure from organised labour; on the contrary, the steps it has taken have been as well considered as possible, and based upon one principle—the desire to be fair-minded. That the other side will eventually respond to a far greater extent than unfortunately is the case to-day—with greater loyalty and better work—is a fair anticipation and a reasonable hope.



The Apex Mill, soon to be Crushing Modder East Ore.

WHAT'S WRONG WITH THE REEF MINER'S LOT?

Some Suggestions to Ameliorate It—The Example of an "Outside Community"—The Spirit of the New Armies Wanted—Directors and "Truck-Busters"—Leave Privileges and Where they Fail—The Need of a Blackpool-on-Vaal—Valuable Constructive Criticism.

[*By a Special Correspondent.*]

Not the least noteworthy of the many important matters discussed by Sir Evelyn Wallers in his masterly speech at the annual meeting of the Chamber of Mines on Monday last was his reference to European labour matters generally, and particularly with reference to the relations existing between employers and employees of the mining industry. Few of us probably realise the quantity of time expended and the vast amount of tact and patience devoted by Sir Evelyn and his colleagues to the task of preserving industrial peace along the Witwatersrand during the past few years, and particularly during the past few months. There are many who consider that too much has been conceded to labour. Whether this latter view is right or wrong, it is not proposed to discuss in this article. We intend rather to ask why it is that European labour along the Reef, despite high pay and short hours, holiday concessions and everything that money can buy in the way of housing accommodation and recreation halls and sports grounds—why it is that a spirit of unrest still prevails along the Rand.

The World's Travail.

It may be argued that industrial rebellion is common all the world over and that discontent on the Rand is only symptomatic of the travail of the world at large. This is true, but merely because it is true is no reason why we should not endeavour to set our own house in order and to try and see where the mischief lies and how it may be rectified. Within the past half a century an entirely new problem has crept slowly but surely into industry the world over—the problem of handling large bodies of men fairly and squarely, of exacting the maximum amount of work out of them at a minimum of fatigue, of educating them up to the value of efficient service, of safeguarding them against industrial hazards, of giving them healthy living conditions both in the factory and in the home, of compelling them and their wives and families to keep healthy—in short, of cultivating *mens sana in compore sano* up to the highest pitch of practical industry and practical sociology. A few decades ago men were not handled: they were driven. But the development of trades unionism has changed all that and the employer who will not recognise the power as well as the uses of labour had best close down his mine or his factory, for he is "up against" as futile a proposition as was Canute on the beach a good many centuries ago.

Witwatersrand Experience.

The principle of co-operative interest as between employers and employees has been abundantly appreciated on the Witwatersrand of recent years. But with the recognition of this profound and just principle and the carrying into practice of its cardinal requirements, unrest and dissatisfaction have in no degree abated: on the contrary, they have grown like weeds in an ill-tended garden. A few years ago the Rand embarked on a great welfare campaign. The leaders of the industry devoted serious consideration and several hundreds of thousands of pounds to the after business hours of their employees. They built admirably comfortable houses for their married employees and excellent quarters for the single men on their pay rolls. They erected huge recreation halls, improved the conditions obtaining in the mine boarding houses, laid out cricket and football grounds and tennis courts on a lavish scale, constructed swimming baths and gymnasiums and improved change houses. They embarked on a Safety First policy to reduce accidents, and started a free paper for Reef workers, a paper which preached safety and hygiene, the merits of economy, the virtues of gardening and the value of sport.

The Welfare Campaign.

When the War broke out the mining houses made generous allowances to the dependents of men who went oversea and gave quarter pay to single men. Later on they introduced an elaborate system of leave, applying to all employees, with the object of enabling all workers to enjoy a substantial annual holiday. War bonuses were granted and continued after the armistice. More recently, in view of higher living costs, pay has been increased. Furthermore, hours have been reduced, payments to phthisicals have been enormously augmented, and War bonus has been consolidated. But despite all this welfare work—welfare work of a most practical nature, we might add—the man who suggested that the workers along the Reef are a happy and contented community would rightly be regarded as an incorrigible optimist or as one who had lost all sense of truth.

An Example and a Contrast.

If one who has some knowledge of conditions on the Rand visits an "outside districts" industrial or mining community he cannot help but observe the vastly different and vastly better spirit which prevails there than exists on the Rand. One hears little of discontent or of downing tools at the slightest pretext in the outside ventures. There is an atmosphere of camaraderie which is absolutely lacking at most of the big Main Reef ventures. There is more intimate relationship between the manager and his heads of departments with the workers and far more sociability amongst the female representatives of the different grades than is to be found on the Witwatersrand. And this more intimate relationship does not imply disrespect or insubordination.

The Spirit Which Won Victory.

On the contrary, it implies, except in a very few isolated instances, a greater respect and a more sincere regard for the boss, better and more cheerful work and a far less disposition to shirk, strike and be miserable. The writer of this article was very much impressed the other day when visiting an outlying industrial and mining community in company with a director of that concern. The director was a young man who had served with the army in France, and he took a real pride in the fact that he knew every employee by name—knew him well enough to shake him by the hand and ask him questions about his work, his play, his family, his hopes and his disappointments—questions which of their very intimacy proved to the employee that the boss knew all about him and took a real and lively interest in his

C. D. LUCAS & B. E. WOLFE
MINING ENGINEERS.

Permanent Buildings,
Phone 4368.
P O. Boxes 6301 and 537.
Johannesburg.

EXAMINATION RESULTS.

MANAGERS' EXAMINATION held January, 1920.—We obtained no less than NINE passes from ELEVEN Entries.
This constitutes a percentage record for this Examination.
SURVEY EXAMINATION held November, 1919.—SIX of a total of SEVEN Passes were obtained by our Students. All other coached men failed to pass.
OVERSEERS' EXAMINATION.—We are AHEAD of all coaches with passes 1918 and 1919.
Write for particulars of our up-to-date Tuition.

affairs. "I let them all know I am their friend," said the director. "I would not, of course, do anything to undermine the authority of the local management, but I let them know that I take a real interest in their work and play, in their families and their troubles and happinesses, and if I can help them in any way I do." One could not fail to realise how thoroughly in earnest he was when he said this. Later on he took seven children of his workmen to school in his motor car and thoroughly enjoyed doing it. The men work hard at that particular place, much harder than they do on the Rand. But they are infinitely happier and more contented.

RAND CONDITIONS.

Undoubtedly the conditions in an outside community are more favourable for the cultivation of such a spirit of mutual regard and self-esteem as between masters and men than they are on the busy striving Rand with its agitations and agitators, its stress and strain and fast living temptations, without it must be recognised many attractions in the direction of rest or change or ideal holiday surroundings. But surely it is possible to inculcate a better spirit of understanding amongst those who direct and those who labour.

THE BOSSES AND THE MEN.

How many directors of the great gold mining companies of the Witwatersrand, it may be asked, could go to one of their numerous properties and recognise and call by name a single employee under, say, the rank of a mine captain or shift boss? This may seem a strangely small thing. But it is not a small thing: it is a mighty big thing—it is a thing so big that it largely helped the British armies to win the Great War. The officer who really knew and liked his men and who was in turn known and liked by them was the greatest factor in the complex military machine which secured victory. The new armies destroyed the old fiction that no man could command men unless he held aloof from them. This, of course, does not imply that a Colonel should play "House" with his batman. There is a definite though finely drawn line of decorum in these matters, a line which most soldiers and most workers too, respect if it is drawn in the right manner by the right person.

FUTILITY OF SPEECHES.

The controllers of our gold mining industry are exceedingly busy men. But we hazard the opinion that if they devoted more time to really knowing their workmen by personal contact and less time to making long and statesmanlike speeches concerning abstruse problems in economics and erudite remarks on the subject of sociology, they would get to a better basis of understanding with their employees than they will ever attain to through the medium of presidential perorations or the distribution of cups and medals at some function or other where the stage management is zealously guarded by the "under bosses." As things go to-day the mine manager is the medium between the director and the timberman, the contractor and the "truck buster." How many Rand "truck busters," we wonder, have ever met their directors, and how many Rand directors could tell you the name of a single truck buster, if indeed they know what a truck buster is? This may sound a rather hollow and foolish question. But in reality it defines a most important difficulty in Rand industry. It is just because the "truck buster" and the director have never met and had a heart-to-heart talk over matters that the Reef is undisciplined, unsatisfied and unsettled.

THE MINE MANAGER'S PART.

The mine manager can, of course, do much in the solution of the social problem. But he has not the influence of the high authority. Too often, too, the Rand mine manager is a mere technical automaton tied down to routine and an office desk during most of the day and both unknown and unseen after the shift is over, except perhaps at some presentation or annual meeting of the benefit society. The mine manager's wife, as the first lady of the mine, has many chances of breaking down social barriers and clearing up misunderstandings. Some mine managers' wives are ministering angels amongst their sick and unhappy. But whilst several are an inspiration and a help to every social function, others, it seems, have never realised and never intend to realise that, as Kipling puts it "The Colonel's lady and Judy O'Grady are sisters under their skins." This lack of acquaintance, and therefore of understanding, between the classes and the masses of our mines is, we believe, the main cause of unrest and dissatisfaction along the Reef, and whoever will be wise enough and bold enough to sweep away this aloofness and bring into the industry an atmosphere of trust and respect amongst bosses and workers will achieve far more than the maker of the finest speeches the Chamber of Mines has ever listened to. But it will only be done by rubbing shoulders and shaking hands with the workers.

WHERE ARE OUR HOLIDAYS?

There is another matter which we believe to be largely responsible for the Reef's unrest. The mines grant their employees holidays. But with travelling expenses and board and lodging at the coast ranging anywhere near present figures, what hope has the average Rand mine worker of taking his wife and family to the seaside for the annual vacation? He has none whatever. And so because he cannot take his family to the coast he does not go away at all. The nearest "Pub." and the racecourse absorb his holidays. The amount of money that is lost each and every Saturday and every public holiday by the workers on the mines is colossal. Most men by the time they have reached to years of discretion have been abundantly disillusioned of the idea that bookmakers and totalisators were placed in this world for the purpose of enriching the public. The average Rand mine worker long ago learned this lesson. But he continues to bet, and the writer knows, from experience and conversations around the shaft head or in the change house, that the Rand miner regards the racecourse as some monstrous institution legalised by Government to commit wholesale robbery, but which he is compelled by custom and the magnetic mirage of a lulky chance coming home to patronise. The majority of the Rand's miners after a three weeks' sojourn in the most adjacent "Pig and Whistle," varied by costly visits to the turf, return to their labours morally, mentally, physically and financially poorer than when their holidays started. The Chamber of Mines, it is to be presumed, intended that the annual leave privileges should benefit employees. War and post-War conditions have prevented the railways from organising excursions, and in any case it is a matter of very considerable difficulty to shepherd together a sufficient number of mine workers all bound for the same seaside resort and at the same time.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

SALISBURY, RHODESIA.

WIGG & JENKINS,

MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.

Gold and Base Metal Properties FOR SALE AND WANTED.

Correspondence invited.

P.O. Box 118. Telegrams: "WIGG."

THE OBVIOUS REMEDY.

No blame can be attached to the Chamber of Mines for this. But it is passing strange to the writer of this article that our employers of labour who are, they say, perpetually endeavouring to improve the lot of their workers, have never yet attempted to solve this vital problem of holidays by a perfectly obvious method. No exception can be taken to the statement that holidays are vital. They are absolutely essential to the worker and especially to his wife and children who live and toil at this altitude and amidst the stress and strain of the Reef. Many mine employees have not been away from the Rand for years. They would do much better and more cheerful work if they had been away. But the Transvaal, and in fact the whole of Interior South Africa, is not richly endowed with pleasure resorts where the man of modest means and his human belongings can enjoy a respite from the cares and toil of the goldfields.

WANTED, A BLACKPOOL.

Obviously the solution of the question is to create such a place. There are many charming spots along the Vaal River that might be converted into medium-priced holiday resorts. It is not the select, quiet, country hotel that is wanted, but a sort of Blackpool-on-Vaal with skittle alleys and beer, bathing and boating, swings and roundabouts for the kiddies, clean, healthy air and trees and flowers, a big stretch of water, and all at a lower altitude than that of Johannesburg. If it was good and humanitarian business on the part of the Chamber of Mines to grant employees holidays, it would be at least equally sound and worthy of commendation if the mining houses gave their employees the opportunity of enjoying the holiday and benefiting by a change at some spot within fairly easy reach of the Rand and of their pockets. The Colonial Office long ago recognised the value of a change for civil servants in the tropical Dominions and ordered that leave must be spent outside those Colonies. You cannot coerce a Rand miner into going away for his holiday.

THE MINER AND HIS LEAVE.

But he could easily be induced to go if the time office was adorned with attractive photos of a Blackpool-on-Vaal and if the timekeeper could quote a cheap inclusive tariff for the period of the employee's leave when holiday pay was drawn. If the mining houses subsidised a holiday resort scheme on the lines suggested above, it would prove of inestimable benefit to the employees and therefore to themselves. An attractive and close at hand resort is badly needed by the Rand, and there is absolutely nothing of the kind in existence to-day. Herein, we believe, lies some chance for the amelioration of the unsatisfactory social conditions which exist along this goldfield. Holiday facilities and more practical understanding between master and man gained by personal contact will, we submit, achieve more than all the fine speeches and all the fine recreation halls—more, too, than increased pay and shorter hours and specious promises and ceremonial functions.

I.M.M. War Memorial.

The Council of the Institution of Mining and Metallurgy have had under consideration various suggestions for commemorating the services of members of the Institution in the Great War, and perpetuating the memory of those who made the Great Sacrifice. The question was referred to a special committee, whose recommendations have been unanimously adopted by the Council. These include a sculptured figure to be placed in the house of the institution, and a record of those who served in His Majesty's Forces. The full scope of the memorial cannot be decided until the Council know the extent of the response to this request, but they hope that a fund of about £4,000 may be available. Members of the institution and others interested in the mining industry are invited to contribute to the War Memorial Fund.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

OUR SPECIALITY!
(NOT TO BE BEATEN).

MAGNETOS
! F. HOPPERT. !
MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:
Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

SHAFT SINKING PROGRESS ON THE NEW STATE AREAS.

Review of Work of Sinking and Equipping the Property During 1919.

In the course of his report on the New State Areas, the Inspector of Mining Leases, Mr. J. H. Twiddy, writes:

Preliminary operations were started in March, 1918. and considerable progress has since been made in the erection of buildings and plant and the general equipment of the property. The sinking of two vertical shafts, each 26 feet 3 inches by 11 feet 3 inches inside timbers, was also commenced. These two shafts, known as the north and south shafts, were at the end of the year down 1,065 feet and 1,441 feet respectively, the depth at which the reef is estimated to be struck being 3,500 feet in the north shaft and 3,620 feet in the south shaft. The south shaft is the principal shaft, and in the vicinity of this are situated the offices, stores, and workshops. The single, married and staff quarters are located approximately equidistant from the two shafts, the distance between these shafts being about 4,600 feet. The principal equipment at the south shaft consists of a permanent timber headgear, boiler-house with four boilers, engine-house, and two hoists, compressor-house and compressor, fan-house and fan (30,00 cubic feet), drill-shop, change-house, native compound, store workshop, ambulance-house, transformer-house, temporary offices, etc. At the north shaft the principal equipment consists of a permanent timber headgear, boiler-house with four boilers, engine-house and two hoists, fan-house and fan (30,000 cubic feet), drill-shop, change-house, explosives magazine. native compound, etc.

The quarters consist of boarding house, ten blocks of five rooms each single quarters, eighteen four-roomed cottages, ten three-roomed cottages, underground manager's house, and compound manager's house. The railway siding from Springs Station to the south shaft is completed, and its continuation to the north shaft practically so. There is also a macadamised road between the two shafts.

Shaft Sinking.

North Shaft.—The footage sunk during the year amounted to 920 feet, the total depth being 1,065 feet. and the shaft being timbered to approximately 25 feet of the bottom. The above footage for the year does not appear to be very satisfactory, but the course of sinking has been considerably interrupted and delayed. No sinking was done during the first three months of the year pending the completion of the construction of the permanent headgear and hoist, which took place towards the end of April. Soon after sinking was restarted a considerable flow of water, amounting to about 200,000 gallons a day, was met with in the dolomite formation, and later on more water was struck, practically doubling this quantity. This flow has considerably decreased, and now only about 250,000 gallons are pumped from this shaft. It will also be recalled that in June there was a strike of engine-drivers, sinkers, and pumpmen which lasted a considerable period and greatly delayed progress. The shaft bottom is now in quartzite.

South Shaft.—The footage sunk during the year amounted to 1,338 feet, the total depth being 1441 feet and the shaft being timbered to approximately 25 feet of the bottom. Shaft sinking was only restarted in February on completion of the permanent headgear and hoist. When entering the dolomite formation, water to the amount of 240,00 gallons a day was struck. A permanent ring has been cut 542 feet and a pump installed. The strike referred to in connection with the north shaft also affected this shaft. Reef belonging to the Kimberley Series was cut at a depth of 1004 feet. The shaft bottom is in quartzite.

Both north and south shafts are being sunk by machine drills.

Capital Expenditure.

The capital expenditure for the year amounted to £239,302, made up as follows:—Shaft sinking and equipment, £118,715; Surface equipment at shafts, £37,420; Air-compressor plant, £22,360; Railway siding, £25,279; Transformer-house and cables, £11,618; Quarters and compound £6,628; Other surface works, buildings, etc., £17,282; Total £239,302.

General.

Electric light is installed throughout the property, and the ventilation fans and machine tools are electrically driven, the current being supplied by the Victoria Falls and Transvaal Power Company, Ltd.

Taking into view the delays encountered in connection with the shaft sinking, the rate of progress has been satisfactory, and the erection of the machinery, plant, and buildings, has been carried out as expeditiously as circumstances would permit.

IRON
AND
STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

THE YEAR WITH BRAKPAN MINES.

Lower Tonnage Milled—Increased Profits, Yield and Working Costs.

In the course of his report for 1919, Mr. C. R. Davis, the consulting engineer of the Brakpan Mines, writes:

The following summary presents some of the results of the past two years' work—for comparative purposes the standard price of gold has been taken:—1918: Tons milled, 617,100; working profit, £366,010; revenue per ton milled, 35s. 3·9d.; working costs per ton milled, 23s. 5·55d.; profit per ton milled, 11s. 10·35d.; development footage, 15,741 feet; ore reserve, 2,718.000 tons; value, 8·71 dwts. 1919: Tons milled, 544.200; working profit, £314,535; revenue per ton milled, 38s. 2·37d.; working costs per ton milled, 26s. 7·66d.; profit per ton milled, 11s. 6·71d.; development footage, 19,343 feet; ore reserve, 2,484,117 tons—value, 8·74 dwts. The working profit of £314,534 18s. 3d. is increased by £98,773 11s. 8d. in respect to the premium on gold sales from 25th July, 1919, to 31st December, 1919, and £9.651 14s. 10d. adjustment of provision for additional realisation charges, the total working profit for the year under review being £422,960 4s. 9d. The tonnage milled decreased by 72.900 tons. Whilst the tonnage from the older sections of the mine was up to expectation, the southern, or lower, section contributed less than its normal amount—due to difficult roof conditions in some of the stopes being further aggravated by the enforced use of machines for stoping. The extending use of the jackhamer type of machines, however, has enabled the management to better cope with the bad hanging, and the tonnage now being obtained records a satisfactory improvement. The increased yield of 2s. 10·47d. was more than off-set by an increase in working costs of 3s. 2·11d. In detail, increases occurred in respect to the following items: Iucrease in development charge, 1s. 3d. per ton; increased cost of stores, 7d. per ton; increased War bonus, 5d. per ton; wages and allowances, 4d. per ton; extra phthisis compensation (August to December inclusive), 3d. per ton. The yield, at 38s. 2·37d., was higher than called for by the value of the reserves, this being due to the value of some stope faces in the eastern section of the mine being considerably in excess of the calculated value of the area in which the stopes were being worked. A portion of this excess gold was carried to reserve, the latter amounting to 3,724 fine ozs. at the end of the year. During the last half of the year overmining in respect to grade has been negligible, and the actual values of the stopes have been in close agreement with the ore reserve values. The ore reserve position is exhibited as follows:—At 31st December, 1918, 2,718,000 tons; stope width, 68 inches; stope value, 8·7 dwts.; inch dwts, 594. At 30th June, 1919, 2,378,000 tons; stope width, 69 inches; stope value, 8·8 dwts.; inch-dwts., 606. At 31st December, 1919, 2,484.000 tons; stope width, 70 inches; stope value, 8·74 dwts.; inch dwts., 611. In the report for the quarter ended 30th June, 1919, the reasons for the loss of tonnage were given as follows: The rise in pay limit, tonnage mined exceeding tonnage developed, and elimination of areas in which additional development was necessary. The above table shows an increase in the ore reserve during the last six months of the year amounting to 106,000 tens, the width and value exhibiting little change. The development footage for the year totalled 19,343 feet, of which 13,568 feet were on reef, averaging 8·81 dwts. over 38·26 inches. The results for the past two years are as follows:—1918: Payable footage, 5,065; percentage payable, 51·2; average width, 41·00 inches; average value, 14·6 dwts. 1919: Payable footage, 6.920; percentage payable, 51·3; average width, 40·63 inches; average value, 13·8 dwts. During the year good progress was made in the extensions of main headings in the lower portion of the mine and into the lease area. The main incline south haulage advanced 1,061 feet, the 18 east haulage 778 feet, the 18 west haulage 1,053 feet, and the south west incline 886 feet. In the upper levels a considerable tonnage of payable ore has been exposed by the further development of the favourable portions of unpayable areas. Progress in the 14a, 15, 16 and 17 levels east, towards the State Mines boundary, has been retarded by faults encountered. With the recovery of the reef east of the faults, a better rate of development is being achieved. A considerable measure of success in regard to the value of reef exposed is to be recorded, but development is as yet insufficient to afford a comprehensive view as to the value of this area. Excellent reef widths and values have been encountered in the 19th and 20th levels. As from 1st July, the development redemption charge was increased from 3s. 6d. to 5s. per ton milled, the average figure for the year being 4s. 2·85d. The actual expenditure on development for the year exceeded the fixed amount charged to working costs by £46.215 9s. 11d. During the last six months, however, the expenditure was only £12,871 16s. in excess of the amount redeemed. The total capital expenditure for the year amounted to £146,321 7s., of which the following was allocated to the lease area: No. 3 shaft sinking, £51,672 4s. 5d.; No. 4 shaft sinking, £50,679 16s. 5d.; total sinking, £102.352 0s. 10d.; equipment, etc., £36,016 17s. 7d.; total, £138,368 18s. 5d. Expenditure in connection with the old area of the mine was only £7,952 8s. 7d., the bulk of which was in connection with the cutting and equipment of the 18th level pumping station and certain additions to the reduction plant. In the lease area good progress with the sinking of the Nos. 3 and 4 shafts has been made; No. 3 shaft was sunk 1,808 feet to a total depth of 2,290 feet, and, in addition, two pump chambers were cut, while No. 4 shaft was sunk 1,444 feet to a total depth of 2.487 feet, and here also two pump chambers were cut. Water-bearing fissures encountered retarded the shaft sinking operations for several months.

WITWATERSRAND DEEP, LTD.

(Incorporated in the Transvaal).

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-second Ordinary General Meeting of Shareholders for the year ended 31st December, 1919, will be beld in the Board Room, First Floor, Exploration Buildings, Johannesburg, on WEDNESDAY, the 26th MAY, 1920, at 2.30 p.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st December, 1919, and the Reports of the Directors and Auditors
2. To elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
3. To determine the remuneration of the Auditor for the past audit, and to appoint an Auditor for the ensuing year.
4. To transact any other business which ought to be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Share Transfer books of the Company will be closed from the 20th May, 1920, to the 26th May, 1920, both days inclusive.

Holders of Share Warrants who desire to be present or represented at the Meeting shall produce their Share Warrants (or may at their option deposit same) at the places and within the times following:—

(*a*) At the Head Office of the Company, in Johannesburg, at least 24 hours before the time appointed for the holding of the Meeting.

(*b*) At the London Office of the Company, Palmerston Houses, Old Broad Street, London, E.C. (2), at least 30 days before the date appointed for the holding of the meeting;

and shall otherwise comply with the "Conditions as to the issue of Share Warrants" now in force.

Upon such production or deposit a Certificate, with Proxy Form, will be issued, under which such Share Warrant holders may attend the Meeting either in person or by proxy.

By Order of the Board,

L. CHARLSTON GOCH & CO.,
Secretaries.

HEAD OFFICE:
90/94, Exploration Buildings,
Commissioner Street,
Johannesburg, Transvaal,
1920.

67442

The sign the World knows

IT IS THE GARGOYLE — the world symbol of scientific lubrication.

The red Gargoyle appears on cans and barrels which leave Vacuum Oil Company refineries scattered over the globe.

The red Gargoyle points the way to correct lubrication on six continents. It hangs out over garage doors in every country where motor cars are a factor. In the ports of the world it is looked for by owners of steamships.

It is a servant to electricity, steam and gas. It gives these power-sources their right to work at full efficiency.

Every nation on the two hemispheres recognizes the red Gargoyle. It is their guide-post to mechanical efficiency.

GARGOYLE

Lubricants

A grade for each type of service.

VACUUM OIL COMPANY OF SOUTH AFRICA, LTD.

THE OUTLOOK FOR SPRINGS MINES.

Gradually Improving Position—Comprehensive Scheme of Future Development—Increased Working Costs.

In his annual report for 1919, Mr. C. R. Davis, consulting engineer of the Springs Mines, writes:

A comparison of the principal results for the past two years is as follows (for comparative purposes the standard price of gold has been taken):—1918: Tons milled, 427,610; working profit, £423,696; revenue per ton milled, 42s. 4·37d.; working costs per ton milled, 22s. 6·57d.; working profit per ton milled, 19s. 9·80d.; development footage, 17,890 feet; ore reserve, 2,367,636 tons, value, 9.26 dwts. 1919: Tons milled, 434,610; working profit, £248.574; revenue per ton milled, 38s. 2·41d.; working costs per ton milled, 26s. 9·14d.; working profit per ton milled, 11s. 5·27d.; development footage, 18,560 feet; ore reserve, 2,417,298 tons, value, 8·74 dwts. In addition to the working profit of £248,573 12s. 8d., the premium on gold during the period 25th July to 31st December, 1919, realised £88,584 1s. 11d. Adjustments in respect of realisation charges resulted in a credit of £6,507 12s. 8d., the total working profit for the year being increased by the above items to £343,665 7s. 3d. The tons milled increased by 7.000 tons. The rate of crushing was augmented during the second half of the year, viz., 224.100 tons being milled, as compared with 210.510 tons during the preceding six months. The difficulties in respect to the mining position were fully dealt with in my general report issued to shareholders on 13th May. As forecasted, the position, reflected by tonnage mined, has been one of gradual improvement since the mid-year, following on the completion of certain essential subsidiary development and the improvement of facilities in respect to transport. The yield, at 38s. 2·41d., although less by 4s. 1·96d. than during the previous year, was in accordance with the forecast made in my report referred to above. During the last six months the estimated value of the tonnage drawn from the reserve averaged 8·54 dwts., as compared with the calculated value for the payable ore reserve at 30th June, 1919, of 8·73 dwts. Working costs, at 26s. 9·14d., are 4s. 2·57d. per ton milled higher than the average for the previous year. Increases occur in respect to the following items: Development charge, 1s. 3·5d. per ton; Phthisis compensation, 3·0d. per ton; the remainder being accounted for by the increased cost of stores, and especially the increase in European wages and allowances. Expectations as to working costs for the present year are necessarily on the high side, owing to increases in the wage scale for both European and coloured employees and the continued increase in the cost of stores. As from 1st July the fixed charge for development was increased from 2s. 6d. to 5s. per ton milled, the average for the year being 3s. 9·469d. This amount was insufficient to redeem the total expenditure on development, leaving a debit balance of £88 211 15s. 11d. for the year. This excess expenditure, however, resulted in an increase in the Ore Reserve, and a consideration of the position on broad lines does not indicate any present necessity for the further revision of the fixed charge for development. The capital expenditure on shaft sinking and equipment amounted to £151,471 0s. 3d., allocated as follows:—In the lease area—No. 3 shaft sinking, £89,028 1s 1d.; equipment and general, £35.104 16s. 7d.; total, lease area, £124 132 17s. 8d. In the "Old" Area the expenditure amounted to £27.338 2s. 7d., the principal items being fifteen cottages, compound extension, railway siding, and additional equipment at No. 2 shaft. The ore reserve position for comparative purposes is tabulated as follows:—At 31st December, 1918, 2.367.636 tons; stope width, 61·25 inches; stope value, 9·26 dwts.; 567 inch-dwts. At 30th June, 1919, 2.243 934 tons; stope width, 62·23 inches; stope value, 8·73 dwts.; 543 inch-dwts. At December 31st, 1919, 2 417 298 tons; stope width, 62·92 inches; stope value, 8·74; 550 inch-dwts. This tonnage shows a material improvement as compared with the mid-year estimate, and is slightly in excess of the position as shown at the end of 1918—materially so, if the estimate of 2,222.028 tons in my report of 13th May be referred to. The development footage for the year amounted to 18.560 feet, of which 12.833 feet were on reef, averaging 19·79 dwts. over 17·97 inches. The payable footage is summarised and compared with the previous year as follows: 1918, payable footage, 7.700; per cent. payable, 59·5; average width, 30·34 inches; average value, 20·83 dwts.; 632 inch-dwts. 1919, payable footage, 7.900; per cent. payable, 61·9; average width, 22·63 inches; average value, 23·19 dwts.; 525 inch-dwts. Amongst the more important headings the extension of which has a material bearing on the ore reserve position and working conditions may be mentioned:—The West Haulage, North Shaft, disclosing payable values but disturbed ground. The South Haulage advanced 965 ft., and was at 31st December, 1919, only 800 ft. from No. 3 shaft. The North-West Haulage, connected with the 8th Level West, proved a large tonnage of payable ore, and much improved the ventilation of the western portion of the mine. The East Haulage indicates continuously high values for the last 1,100 feet. This haulage and subsidiaries therefrom are opening a large high-grade payable area, the ultimate extent of which has not yet been disclosed. The importance of subsidiary development has not been lost sight of, and the considerable footage done has improved the position as regards the mining of the payable reserves. A comprehensive schemo has been adopted for the future development. Briefly described, the mine will be blocked off in large areas by the main haulage systems, the interior development of these blocks being accomplished by ordinary levels, together with the necessary winzes and raises in the ore shoots. Credit should be given to the officials and employees concerned for the excellent footage secured at No. 3 shaft, viz., 2.190 feet for the year. It is expected that the reef will be reached about the middle of the year, at a total depth of 3,450 feet to 3,500 feet, and the connection effected with the South Haulage from No. 2 shaft shortly thereafter. The site of No. 4 shaft has been located. Contracts have been let for the permanent headgear and a portion of the equipment. The construction of roads, etc., is proceeding. It is hoped to have everything in readiness for sinking operations following on the completion of No. 3 shaft.

Latest Company Registrations.

PROSPECTUS.

East Witpoortje Gold Mining Company, Ltd., Johannesburg.

ALTERATIONS AND ADDITIONS TO FOREIGN COMPANIES.

Houtpoort, Ltd., Johannesburg.
The Makganyene Diamond Syndicate, Ltd.

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 23 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record*

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

THE WORLD'S OIL SUPPLY.

" Underground " Resources Approaching Exhaustion in the United States—Development of the American Oil Shale Industry—The Vast Importance of South Africa's Oil Shale Areas.

It is clear from a report contained in a recent issue of the *Board of Trade Journal* that the " underground reserves " of oil in the United States are rapidly approaching exhaustion and that much further attention will have to be directed to the nearer surface supplies—notably bituminous shale—in order to meet the ever-increasing demand. The report in question was furnished by His Majesty's Commercial Secretary at Washington, and the following reprint is taken from *The Times:*

There appears to be little reason to doubt, it is stated, that the manufacture of oil from oil-shale is destined, in the not very distant future, to assume in the United States a more prominent place than it now occupies. The consumption of mineral oil and its derivatives is increasing rapidly. In the automobile industry alone it was estimated that there would be 7,602,000 automobiles, either passenger or commercial, officially listed in the United States on December 31st, 1919, which would be an increase of about one and a quarter million above those of 1918. The number of motor-trucks is estimated between 600,000 and 700,000. According to automobile makers, passenger car production should reach 1,700,000 this year.

According to the " Annalist " of November 17th, the use of oil as fuel for ships is also rapidly increasing. The United States Shipping Board has abandoned the coal-burning ship, and 636 out of 720 vessels under construction for the Emergency Fleet Corporation will be oil burning. The former German liners are being converted to oil-fuel consumption. The fleet of the Atlantic, Gulf, and West Indies Steamship Company totalling 274,464 deadweight tons is being modified so as to use oil-bunkers. The United States Government has quite recently acquired or opened oil-fuel storage centres for its Navy at Panama, St. Thomas, Azores, Biserta and Manila.

A report, issued in the latter part of May, 1918, by the United States Bureau of Mines, however, stated that the underground reserves of the United States are 40 per cent. exhausted, while production from drilling has probably nearly attained its maximum. This view is corroborated by a report issued this year by the Smithsonian Institute, entitled " The Energy Resources of the United States : A Field for Reconstruction," which calculates, basing its figures on a population of 100,000,000 that the per capita production of petroleum in 1917 was 3.4 barrels, the amount mined from 1859 to 1917 was 42 barrels, and that the underground reserve, available under present methods of mining, was 70 barrels in 1918. It is estimated in the report of the Bureau of Mines, of May, 1919, that the demand will reach 800,000,000 barrels per annum by 1927, and all known, and probably all existing, underground reserves in the United States will be exhausted by 1928.

OIL SHALES TO TAKE THE PLACE OF WELLS.

It is probable that the oil-bearing shales of the United States will serve to take the place, in due time, of the oil wells. The United States Government has taken steps to reserve for naval purposes about 132,000 acres of shale country, of which 45,440 acres are in Colorado and 86,584 in Utah. The oil-bearing stratum in Colorado is estimated by the United States Geological Survey to be on an average 1,500ft. thick, although one cannot assume that this is all commercial shale. Though Utah has a larger area than Colorado, the strata in the latter State appear to be larger, and to have a larger proportion of oil. Wyoming has a larger area than either Utah or Colorado, but with smaller and poorer strata; while Nevada, though the smallest in area, has some rich places. None of these shales contains free liquid oil. They contain altered organic matter from which the crude oil must be produced by destructive distillation. It seems likely that, though wages will probably be higher in the United States than abroad, the conditions will enable the shale to be mined at a less cost per ton. Ammonium sulphate will be a valuable by-product—probably about 10lb. per ton from some of the shales—and it is expected to use the spent shales (the disposal of which has always been a difficulty in Scotland, and an item of expense) as fertiliser, as they contain from 0·5 to 6 per cent. of nitrates and small quantities of potash and phosphoric acid. All this, however, is in the future, for the matter has never passed the experimental stage, and there are not at present any commercial oil-shale plants operating in the United States.

OUR OWN RESOURCES.

These facts are of very material importance and interest to this country, in view of the development of an oil shale industry in the Wakkerstroom district of the Transvaal. In our issue of March 6th last we published the latest report of the consulting engineer on the African Oil Corporation's properties. It may be recalled that Mr. Mills Davies arrived at a calculation of about fourteen million pounds' worth of crude oil contents in the area already developed and sampled. Over and above this there are in the Wakkerstroom district millions of tons of oil shale area are not as yet exploited, but of tremendous presumptive value. This is a most important industrial and economic factor; it is indeed probable that it will be a factor of paramount value to this country in the course of the next few years: and in view of the highly important information contained in the *Board of Trade Journal* we consider that it is the duty of the Government and of the country at large to do everything possible to foster our embryonic but highly potential oil shale industry.

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

HAS THE LOWEST CO-EFFICIENT OF FRICTION.

KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.

Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa : FRASER & CHALMERS, Ltd., Johannesburg, Bulawayo and Salisbury.

BITUMEN
SOLUTION
(COURTNEY'S)

A perfect rust-proof coating for smoke stacks, tanks, pipe lines, iron roofs, etc.

¶ Much superior to paint and costs less. Does not crack, blister or peel off, and is quite unaffected by heat, cold, moisture or acid fumes ; possesses great tenacity and elasticity, and is absolutely non-porous.

A descriptive folder showing other advantages, gladly furnished on request.

GEORGE ANGUS & CO., LTD.
(Incorporated in England.)
Box 3942. JOHANNESBURG. 'Phone 1031.

BARTLEITE
& STREBOR

BARTLEITE jointing is the finest material made for High Pressures, High Temperatures, and Superheated Steam.

BARTLEITE cannot blow out if properly packed, it guarantees a reliable joint and it has the enormous advantage that pressure will not expand it.

BARTLEITE is quite unaffected by acids, ammonia, oils, hot liquids, etc.

BARTLEITE does not adhere to the metal, it can be used over and over again, and its extraordinary durability and reliability in working make it by far the most economical in use.

BARTLEITE may be stored in either hot or cold places, for unlike rubber, no special care is required for its preservation.

BARTLEITE will resist the highest temperatures, so long as it is not exposed to the actual flame.

BARTLEITE can be supplied in thicknesses of 1/32, 1/16 and 1/8 inches and big stocks are always on hand.

**AS the necessity i
real all-round saving
greater efficiency a
increases the deman
"Strebor." This, be
packings and jointin
qualities make certa
many costly delays
replacements, assur
with minimum atte
mate cost—always.**

J. W. ROBERTS, LTD

—the makers of "Bartleite" and "Strebo
Packing Grease, Mica Grease, Packing

BARTLE & CO., LTD.

LOVEDAY HOUSE. P.O. BOX 2466.

JOINTING PACKINGS

eases for further
time and labour,
truer economy, so
or "Bartleite" and
se the using of
f such inimitable
the cutting out of
ecessitates fewer
maximum service
n at lower ulti-

STREBOR packings are made from the very best long Italian hemp fibres and thoroughly impregnated throughout, with specially prepared lubricants, before being twisted or plaited.

STREBOR will not set hard in the gland, neither will it char.

STREBOR will not require drawing out of the gland, a fresh ring or two of the new packing on the top of the old being all that is required.

STREBOR retains its lubricative qualities to the last, the grease will not melt and run out of it even under literal heat.

STREBOR is the highest quality packing of its class made and we particularly recommend it for water pressures up to 700 lbs.

STREBOR is stocked in all sizes from ¼ inch up to 2 inches. Prompt deliveries can, therefore, be made.

F ARMLEY, LEEDS

makers, also, of Hydraulic Packings,
s, Asbestos Millboard Sheets, etc.

OLE
AFRICAN
ENTS,

JOHANNESBURG.

PHONE 3553. WIRES: "FAGGOT."

THE QUESTION OF DEEP BOREHOLES.

Increase of Temperature—Condition and Behaviour of Rocks at Depth.

At a meeting of the Geophysics Committee of the British Association, held in London on February 6th, a discussion took place upon the subject of deep boreholes. The debate was opened by the Hon. Sir Charles Parsons, who had previously put forward a suggestion that it might thus be possible to tap the heat of the earth's interior and utilise it as a source of energy at the surface. The project naturally strikes the imagination, and it does not at first sight appear to be beyond the realm of practical engineering, especially as something of the kind has already been accomplished at La Darello, in Italy, where volcanic heat, in the form of high-pressure steam, is already developing 10,000-horse power, and other projects are on foot for turning to practical account the heat of Vesuvius.

We venture to call attention to this discussion for several reasons. In the first place, the possible utilisation of any natural sources of energy assumes a position of some economic importance. In the second place, our knowledge of the rate of increase of temperature in the earth's crust is still far from complete, and mining engineers cannot but take deep interest in any investigation which is likely to throw light upon it. In the third place, we are still lacking in precise information respecting the condition and behaviour of rocks at considerable depths below the surface. And finally, great importance must necessarily be attached to the views of practical engineers as to the limits of depth it would be possible to reach with the resources now at our disposal.

Upon all these points the discussion referred to above afforded useful and highly interesting information. Let us take, in the first place, the rate of increase of temperature. It is a striking fact that, so far as actual experience in other countries has gone, the average rate of increase of temperature with depth, as measured in English collieries, seems to be altogether abnormal. The geothermic gradient estimated by this criterion is generally assumed to be about 72 ft. per degree Fahr., but in Brazil, in the Morro Velho Mine, where a shaft has been carried down by successive steps to a depth of 6,426 feet, the rate of increase of temperature is less than one-third of this amount. The same conclusion is reached on the Rand, where a shaft at the Village Deep mine has reached 5,400 feet in vertical distance below the surface, and the geothermic gradient has been found to be about 250 ft. per deg. Fahr. The apparently exceptional and steep heat gradient found to exist in the British area at once suggests that some special local reason for it may exist, possibly of a chemical character, and there is no absolute certainty that the same rate of increase would be maintained in deeper workings. This, however, is pure conjecture, and can only be put to the test by actual experiment.

As to the practical limit of a deep borehole Mr. Hugh F. Marriott, whose experience in the deep mines of the Rand lends exceptional authority to his opinion, thinks that it would not be possible to carry a borehole down much deeper than the one recently sunk in West Virginia, which reached a depth of 7,519 feet, and can claim to be the deepest borehole yet made. Probably even this depth could not have been reached by any other method than cable drilling, which is a most unsatisfactory method from an exploratory standpoint. Core drilling, as is known, suffers a great disadvantage owing to the difficulty of maintaining anything like a straight line. If the deviations are unchecked, the rod becomes deflected more and more, and might eventually reappear at the surface. If this tendency to deflection is systematically checked, on the other hand, the rod ultimately assumes a corkscrew shape, and the resulting friction absorbs all the energy that can be put into it from the surface. Thus, a core drill seems to be strictly limited in vertical range, and may be dismissed from consideration for any borehole greatly exceeding one mile in depth.

There remains the shaft method, in regard to which experience gained at Morro Velho and on the Rand is highly instructive. The two most fundamental factors in deep shaft sinking are the ventilation of the working and the stability of the rock. With regard to ventilation, it is necessary to keep the air at the bottom of the shaft at a temperature at which men can work continuously for some hours. An ordinary air current would appear to be unsuitable for this purpose in a very deep shaft, because as the depth increases the air becomes heated by adiabatic compression at a rate which is nearly equal to the temperature gradient in the earth's crust. Other methods of cooling are, of course, practicable; but they all involve an expense which would soon be prohibitive. As to the stability of the rock at great depths, the little that is known of this factor is by no means encouraging. When an engineer makes a hole in the earth he is constantly in danger of disturbing the balance of forces, which, in the case of rocks under great compressive stress, may become highly dangerous to the stability of the shaft walls. Mr. Marriott gave some graphic illustrations of this effect. In Mysore, where the rocks are highly contorted, and are strained almost to the breaking point, miners are killed or injured by the sudden explosion of the rock, and even on the Rand, where the strata are dipping uniformly, the deep workings are groaning and cracking most unpleasantly. If these things are happening at depths of one mile only, the effect at greater depths may be considerable, and Mr. Marriott expressed the opinion that a depth of three miles would be the maximum that could be expected to be reached in any shaft. The 10 or 12 miles contemplated by Sir Charles Parsons, therefore, appears to be quite beyond any possibility of achievement.

The moral of all this is obvious. The exploration of the earth's crust at such great depths being beyond the powers of engineering skill, we should be content for the present with less ambitious schemes. From the point of view of the mining engineer, as well as that of the geologist, it would be highly desirable to put down a number of boreholes of more modest dimensions, rather than to attempt what seems to be practically unattainable and to undertake which, in any case, would involve a huge capital expenditure.

African Banking Corporation, Ltd.

Authorised Capital - - - £2,000,000
Subscribed Capital - - - £2,000,000

Paid-up Capital - - - £1,000,000
Reserve Fund - - - £ 360,000
Reserve Liability of Shareholders - £1,000,000
£2,360,000

Head Office: 63, London Wall, London, E.C.

☞ Branches throughout South Africa and Agents and Correspondents throughout the World.

The "Kelco" Patent Shovel Point.

To Gold, Copper, Tin and Base Metal Mining Companies, P.W.D., Railways, Municipalities, Quarry Owners, Contractors, Etc., Etc.

CUT YOUR SHOVEL BILL IN HALF.

"BRINGS DOWN WORKING COSTS."

Full particulars from the SOLE AGENTS FOR SOUTH AFRICA:

KELLY & COY., Mining Material Merchants and Contractors,

42, WINCHESTER HOUSE, JOHANNESBURG.

Application for Sub Agencies outside the Witwatersrand invited.

DAGGAFONTEIN. A YEAR'S DEVELOPMENT.

In his report for 1919, Mr. C. R. Davis, the consulting engineer of Daggafontein, writes: During the year under review the pumping plant at No. 1 shaft has been completed and is now in operation. The ventilation of the mine workings has been put on a sound basis. The benefit of the above is now being realised in the increased footages being accomplished in the development ends. The development footage, until about the end of April, will be limited by the winding equipment at No. 1 shaft, the large conical hoist not being available until certain structural alterations are completed in order to comply with the instructions of the Mines Department. At No. 2 shaft excellent progress is recorded, *i.e.*, 1,941 feet sunk, and a permanent pumping chamber and sump cut at the 2,100 foot level. Especial mention is due to the record footage of 236 feet in the month of November. A summarisation of the somewhat limited data indicates the possibility of intersecting the reef at a depth of about 3,900 feet. The manager's report mentions in detail the progress of construction work, resulting in large additions to the plant and equipment. The general features were the shifting of surface operations to the No. 2 shaft and adequate provision for the housing and social welfare of the employees, the latter resulting in a more settled and efficient class of workman being available for the company's operations.

THE JOINT HOUSING OF RAND SCIENTIFIC AND TECHNICAL SOCIETIES.

Successful Fruition of Five-Year-Old Scheme to Secure Single Centralized Accommodation for Associated Societies.

As announced in our last issue the scheme to secure housing for the Associated Scientific and Technical Societies of the Rand has, through the munificence of the Chamber of Mines, been brought to successful fruition by the acquisition of the building formerly known as the Johannesburg Club. At a meeting of delegates of the societies, held on Wednesday, the scheme was unanimously approved by the delegates in their individual capacities, and the delegates undertook to put the scheme for approval before their societies at the earliest possible moment. Mr. Precy Cazelet, who has been associated with the movement since its initiation, was in the chair, and from his speech we glean the following facts regarding the history and progress of the scheme, now so happily brought to fulfilment.

HISTORY OF THE SCHEME.

The movement was originated some five years ago, when it was recognised that the financial position of several of the local societies gave cause for anxiety and that the return made to members was in no way adequate. This position was due to several causes, amongst others the defection of members and the accumulation of bad debts, due to the conditions then prevailing as the result of the War and industrial troubles. Another cause may be definitely given as the great lack of co-ordination between not only the societies themselves, but also amongst their members individually. With these points in mind, enquiries were made as to the possibility of both reducing expenses and of bringing about the better provision of social amenities for members. It was felt that if such could be obtained, there would be a considerable increase in the efficiency and usefulness of the societies, both to their own members and, through them, to the public they serve. After very careful consideration of the position and of the possible advantages to be derived by the various societies, a small committee was appointed, consisting of members from the three major societies responsible for the movement, namely, the South African Institution of Engineers, the Chemical, Metallurgical and Mining Society ofSouth Africa, and the South African Institute of Electrical Engineers. As the result of the deliberations of that committee, and at its urgent request, a paper entitled "Notes on the Closer Working and Joint Housing of Technical and Scientific Societies on the Rand" was submitted to and read before some 13 societies, after having been approved by a joint meeting of Councils, held on 24th April, 1919. This paper, which dealt very fully with the whole question, and which included a number of resolutions passed at the meeting in question, was adopted together with these resolutions by the societies represented. As the result of the adoption of these resolutions, each of the societies referred to appointed two representatives who have acted continuously since, as a joint body, for carrying into effect the resolutions which had been agreed to.

THE PRESENT POSITION.

Regular meetings of the Joint Committee—and of the several sub-committees dealing with the different sections of the work—have been held throughout, considering matters from every point of view, and the position now is:—

The Constitution Sub-Committee has drafted a Constitution which was finally adopted this week and which will shortly be submitted to the societies.

Meanwhile, the Finance Sub-Committee had sent out appeals to the Carnegie Foundation and to all old engineers who had left the Rand, and whose addresses were known, and who might be expected to be helpful and sympathetic to the movement, and also an appeal to one wealthy South African.

THE QUESTION OF SITE.

In regard to sites, many sites have been inspected by the Sites and Buildings Sub-committee, and the one which was considered to be preferable from all points of view, was one belonging to and adjoining the Johannesburg Public Library, but, owing to the Library Committee being undecided as to the future of the Library, the matter was hung up by them for about three months. Then, when it appeared that no further progress was immediately possible, it was discovered that the Johannesburg Club premises were in the market, and on inspection they proved eminently suitable for the purpose, and enquiries were made as to price, terms, etc. It was found that the minimum price was £22 500, and if they wished to secure the premises that they had to act at once. Allowing for alterations and additions, the total cost to the societies of making this building entirely suitable for many years for the purpose would be approximately £35 000. The whole position was discussed at a meeting of the Finance and Sites and Buildings Sub-committees, held on the 2nd March last, when it was agreed that a deputation (consisting of Dr. Orenstein, Mr. Kirkland, Mr. H A White, Sir Spencer Lister, Dr. McCrae, Mr. Sinclair and Mr Watermeyer), should wait upon Sir Lionel Phillips and Sir E. A. Wallers, to ask for their co-operation in placing the case of the societies before the Chamber of Mines as the only corporate body which could act in such an emergency, so that an arrangement might be come to instantly to purchase the premises. This deputation was cordially received and most sympathetically heard, and shortly afterwards Dr Orenstein and Mr Kirkland had the opportunity given them of interviewing the Executive of the Chamber of Mines and laying the whole case before the representatives of the Industry. The result of these conversations is the most generous offer of the Chamber.

TERMS OF THE CHAMBER'S OFFER.

Briefly that offer is explained in the following letter from the Secretary of the Chamber:—

"I am directed to refer to the interview that you and Dr. Orenstein had with the Executive of this Chamber, when you put forward certain proposals in connection with a Housing Scheme for Technical and Engineering Societies. My Chamber will make a loan not exceeding £10,000 (ten thousand pounds) on second mortgage on the property which is known as the Johannesburg Club, at 5 per cent. interest; provide the interest on this loan and also on the first mortgage loan, which is not to exceed £12,500 (twelve thousand five hundred pounds) for a period of 2 years; and undertakes to subscribe 10s. for every £1 raised by the societies you represent, the total under this head not to exceed a contribution of £5,000 (five thousand pounds) from this Chamber.

"When you have further discussed the matter will you please give me a report showing details of the proposals, and arrangements can then be made to advance the money and draw all necessary documents in connection with the matter."

At the meeting of the 10th inst. referred to, three trustees, namely, Mr. J. W. Kirkland, Dr. A. J. Orenstein, and Mr. Cazelet were appointed on behalf of the participating societies to proceed with the purchase of the Johannesburg Club premises and to arrange all financial and legal matters relating thereto, and to arrange for the immediate incorporation of the Institution under the Laws of the Transvaal. The purchase has been consummated, and a first bond for £12,500 at 6½ per cent. is being passed, while the Chamber takes the 2nd bond for £10,000 at 5 per cent. interest. The National Bank has meanwhile and until the legal formalities of purchase and incorporation have been completed, guaranteed the purchase to the owners against the personal signatures of Mr. Kirkland, Dr. Orenstein and Mr. Cazalet, and has advanced the price of the transfer, but the societies have now to take the matter in hand and extinguish this overdraft and relieve the three trustees of their personal liability in the whole matter of the purchase by taking over formal responsibility therefor and providing the funds necessary both to cover the overdraft and to finance the necessary current expenditure, which has so far been advanced privately.

A MATTER OF URGENCY.

The urgent matter at the moment is the immediate provision of say £3.000 to £4.000 cash to allow of a start being made, and this sum must be found by the individual societies which have capital and other funds, loaning the same to the Institution against a debenture or other scheme at say 6 per cent. interest, which has yet to be worked out. Further, immediate effort should be made by each society to secure from all its members, both donations to the Institution as each member can afford, and promises of investment in debentures to be subsequently issued. These sums it will be necessary to have to allow of a start being made with the addition of the two floors considered necessary to give adequate accommodation for all purposes, including club facilities, and at the same time to secure a proportion of the whole of the Chamber of Mines' generous offer of £5 000 as a gift on the 2 to 1 basis laid down by them. It is asked by many what will be the charges to societies and members for the undoubted privileges they will gain. This it is yet too early to say, but it is obvious that for the annual per capita subscription which each society would pay, their members would be entitled to the free use of the lecture rooms, committee rooms, library, etc., and the societies to such office accommodation as was available. Only after the addition of the further two floors could all the societies be housed in their own home, and any general club advantages for the members provided.

TITLE OF THE INSTITUTION.

The title of the Institution, which had to be decided prior to purchase, has been agreed as the "Associated Scientific and Technical Societies of South Africa" Mr. Reginald Saner, of the firm of Messrs. Saner and Nathan, who has given the greatest assistance in the emergency, has accepted the office of honorary legal adviser.

During the earlier stages of these efforts Mr. W. W. R. Jago undertook the secretarial duties and when, a few months ago, the work became too heavy, Mr. Spicer stepped into the breach, and both of these gentlemen have given the most devoted and honorary services.

The Associated Societies still require a considerable sum of money before they can qualify for the Chamber's generous offer, and it behoves all concerned, both societies and individuals to use every effort towards this end. The societies are now awaiting replies to their appeals for funds from the Carnegie Foundation and from the several former successful Rand engineers whom they approached both in their personal capacity and for their influence in connection with the appeal to the Carnegie Foundation. Now that such a creditable start has been made, they have every hope of ultimate success, but in order to attain to that success it is necessary that all should put their shoulders to the wheel.

Although the total membership of the Societies is considerably more, a net membership of 2,500 can be counted upon. Until the additional floors are available it will be possible to accommodate with offices three or four of the Societies and to afford limited social facilities to the members of the combined bodies. As soon as the finances will admit, a start will be made with the two additional floors, and these will mean the provision of adequate accommodation for all. In addition, it is hoped that the Seymour Memorial Library will revert to the keeping of the Associated Societies when the School of Mines, in whose keeping the library is now, is moved to the new University Buildings. It only remains to congratulate Mr. Cazelet. University Buildings. It only remains to congratulate Mr Cazelet, of Mines, on the success that has attended this first and most important step towards the fruition of their long cherished hopes.

HADFIELDS LTD.

WORKMEN EMPLOYED
DURING THE WAR
OVER 15,000.

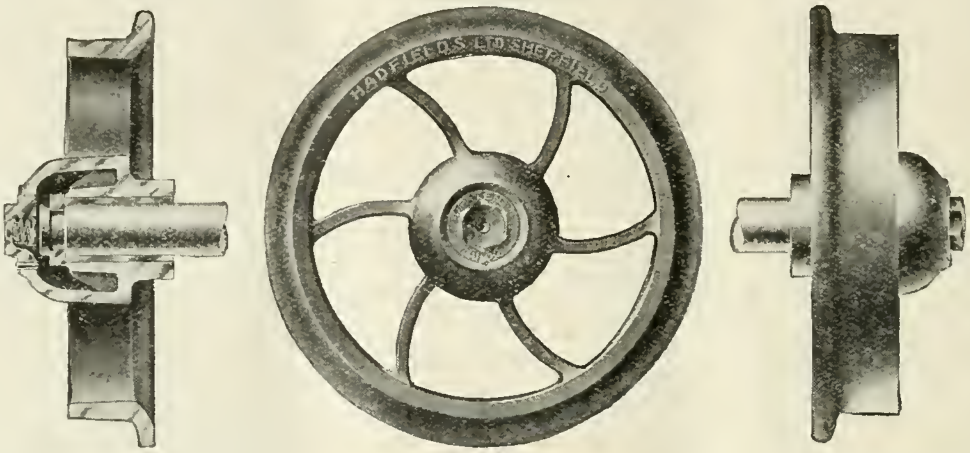
East Hecla and Hecla Works, Sheffield, England.

WORKS AREA:
OVER 200
ACRES.

ROWBOTHAMS

Self-Oiling Wheels and Axles

FOR MINE WAGONS.



ROWBOTHAM'S Wheels have withstood the most severe tests, and have been adopted exclusively in many of the largest Collieries in England.

ALL the Wheels are fitted with a special frictionless bronze bush, which prevents wear on axles and reduces friction to a minimum

ALL THE WHEELS ARE MADE OF HADFIELD'S TOUGHENED CAST STEEL

AFTER being charged with oil they usually require no further attention for a month.

SO perfect is the lubrication, that the ease with which tubs fitted with Rowbotham's Wheels can be hauled is astonishing.

THE cost of oiling is, approximately, one penny per month.

STEEL CASTINGS AND FORGINGS OF EVERY DESCRIPTION.

Complete Stone Breaking and Ore Crushing Plants.

SOLE MAKERS OF HADFIELD'S PATENT

ERA
TRADE MARK

MANAGANESE STEEL

THE SUPREME MATERIAL FOR THE WEARING PARTS OF CRUSHING, MACHINERY, ETC.

Head Office for South Africa: 46 and 47 CULLINAN BUILDINGS, JOHANNESBURG,
PHONE 5900 TEL. ADDRESS: 'HECLA' BOX 1009
STORES: DENVER, TRANSVAAL (Adjoining Denver Station)

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

Natal Agents:
THOS. BARLOW & SONS
(S.A.), LIMITED,
Smith Street, Durban.

THE WEEK IN THE SHAREMARKET.

Dull and Stagnant—Reduced Gold "Premium" and German Troubles Restrict Business.

THE local sharemarket has gone from bad to worse during the past week. New Modders have been dealt in at as low as 73s. 6d., and most of the great Far East Rand stocks are nearly ten per cent. lower than they were a month ago. The ugly situation in Germany coupled with a fluctuating gold premium—with, it seems, a downward tendency, for the time being at any rate—has greatly affected local quotations and prices have been knocked down to lower levels than they have stood at for months past. Modder B.'s have been dealt in at 137s. 6d. and at this price appear to be an uncommonly good buy from an investment point of view. Diamond stocks have been extensively dealt in. Frank Smiths and Crowns keep fairly firm around 15s. and 12s. 6d. respectively. Most of the syndicate stocks are slightly weaker, but Victorys have been in big demand at 3s. and over. Tin stocks have come down, too, in sympathy with a fall in the price of metal. Leeuwpoorts have been down to 25s. 9d., but Rooibergs are firmer at 10s. 6d. Transvaal Silver and Base Metals are steady despite the prevailing depression. African Oils are quoted at 13s. Dagga Options improved on the good news that six months' extension had been granted.

	Fri., 19th.	Sat., 20th.	Mon., 22nd.	Tues., 23rd.	Wed., 24th.	Thurs., 25th.
Anglo-Americans	49 0†	44 0	44 6*	43 6	45 0	43 0†
Apex Mines	7 0*	6 9*	6 9*	—	7 0*	7 0*
Bantjes Cons.	3 7	3 9†	3 3	3 1*	3 3*	3 0*
Brakpan Mines	72 6*	71 3*	70 0*	70 6	70 0	67 6*
Breyten Collieries	8 0*	—	8 0*	—	8 0*	8 3*
Brick & Potteries	4 6*	—	4 6*	—	4 6*	4 6*
British South Africa	19 0*	20 0†	—	19 6†	—	17 6*
Bushveld Tins	1 9*	1 9	1 11†	1 7†	1 3*	1 6†
Cinderella Cons.	6 6	6 6*	6 3*	7 3	—	5 6*
City & Suburbans	6 3*	6 0*	6 0*	6 9	7 0†	6 0*
City Deeps	57 6	57 6*	57 6*	57 6*	57 6*	57 6
Clydesdale Collieries	—	22 6*	—	21 0*	—	22 0*
Cons. Langlaagtes	25 0†	25 0†	24 0†	—	22 0*	21 3*
Cons. Main Reefs	14 3	14 0*	14 0	13 9	13 9	13 0*
Cons. Mines Selection	32 0*	31 3*	31 0*	30 0*	30 6*	—
Coronation Freeholds	2 0	2 2†	1 10*	2 0†	2 2†	2 0†
Coronation Syndicates	16 0*	17 0	16 6*	17 6*	15 0A	15 0*
Crown Diamonds	12 6*	12 6	12 3	12 3*	12 6*	12 6
Crown Mines	76 0†	70 0*	74 0†	74 0†	72 6†	68 0*
Daggafontein Mines	17 6	17 6*	18 0	18 0	17 9*	17 0
Do. Options (5 years)	3 3	3 3*	3 6*	3 6*	3 6*	3 6*
East Rand Coals	2 3*	2 4*	2 5*	2 6	2 8	2 7*
East Rand Deeps	1 0*	—	1 1	—	1 0*	—
East Rand Mining Estates	22 6†	—	22 6†	—		—
East Rand Props.	11 7	11 3	10 6*		10 9	10 6*
Do. Debentures	—	£70*	£70*	—	£72*	£70*
Eastern Gold Mines	1 3*	1 6†	1 4*	1 3*	1 4*	1 4*
Ferreira Deeps	12 6†	—	12 6†	—	12 6†	12 6†
Frank Smith Diamonds	18 0	16 0	16 3	15 6	15 9	15 6*
Geduld Props.	51 6	50 0*	50 0	48 9	49 9	48 6
Glencairns	—	—	0 10	—	0 10*	—
Glynn's Lydenburgs	17 6	17 6†	—	17 0†	16 6†	17 0†
Government Areas	94 3	92 9	91 3	90 6	92 6	91 0
J'burg Board of Executors	35 0*	35 0*	35 0*	—	36 0*	—
Jupiters	—	5 6*	5 6*	5 0*	5 9*	5 6
Klerksdorp Props.	—	—	—	2 0*	2 0*	2 2*
Knight Centrals	6 3	6 0*	6 0*	6 6†	6 0	5 9†
Knights Deep	10 6†	—	10 0†	—	9 6†	9 6†
Lace Props.	14 0*	14 0*	14 0	13 3*	14 0	—
Leeuwpoort Tins	29 6	29 6†	28 3	25 3	27 3	26 0
Lydenburg Farms	7 3*	7 3*	7 3	7 3†	—	6 9*
Middelvlei Estates	—	—	2 0†	1 9†	—	1 3*
Modder B.	147 6*	145 0A	—	136 0*	140 0	—
Modder Deep	52 3	51 6	50 9	50 6	51 6*	51 6
Modder Easts	25 9	26 0	25 7½	24 9	25 6	25 0
Do. Options (3 years)	5 6†	5 0	4 9	4 2	4 6	4 6
Do. Options (4 years)	10 0	9 9	9 6	8 9	8 9	8 6
Natal Navigation Colls.	24 0*	—	—	—	24 6*	—
National Banks	285 0†	285 0†	285 0†	285 0†	285 0†	285 0†
New Boksburgs	—	2 0*	—	2 0*	2 2*	—
New Eland Diamonds	76 0	75 0	—	72 6*	71 0*	74 0†
New Era Cons.	10 0	10 0*	10 0	10 0	—	9 6A
New Geduld Deeps	2 6†	2 1*	2 0*	2 0*	2 2*	2 0
New Kleinfonteins	12 6	12 0*	12 0*	11 6*	11 0	10 6*
New Modders	78 0*	76 3	[illegible] 9	73 6	71 6	75 0B
Nigels	9 0*	9 0*	9 0	9 0*	9 0*	9 0*
Nourse Mines	—	—	12 6	12 6*	12 6*	—

*Buyers. †Sellers. AOdd lots. BEx London.

	Fri., 19th.	Sat., 20th.	Mon., 22nd.	Tues., 23rd.	Wed., 24th.	Thurs., 25th.
Premier Preferreds	—	—	—	140 0*	—	145 0B
Pretoria Cements	97 6	98 6	98 0	95 0*	96 9	98 0
Princess Estates	—	—	2 3*	2 6*	—	2 0*
Rand Collieries	—	—	—	3 0*	3 0*	3 0*
Rand Nucleus	—	1 9	—	2 3†	—	—
Rand Selections	97 3*	92 6	90 6*	—	92 0*	90 0*
Randfontein Deeps	7 1*	7 0	6 6	—	6 0*	6 0*
Randfontein Estates	24 0*	23 6	22 0*	21 6*	22 6*	22 6
Roberts Victors	17 0*	17 0	17 0	17 0	16 0*	17 0†
Rooiberg Minerals	11 0	11 0*	11 0*	10 3	10 0	10 3*
Roodepoort Uniteds	4 0*	5 0†	—	4 0*	—	—
Ryan Nigels	4 0	4 0*	4 0*	3 9*	4 0*	4 0*
Shebas	3 1*	3 6†	2 9*	—	3 4†	3 6†
Simmer Deeps	3 6†	3 3†	3 0†	—	3 3†	3 3†
S.A. Lands	—	—	5 10	5 7	5 6	5 1*
Springs Mines	53 3*	53 3	52 3	51 9	52 0	54 6
Sub Nigels	17 0*	17 0	16 6*	16 0*	16 3*	15 6*
Swaziland Tins	14 6*	14 6*	15 0*	15 0	14 6*	14 0
Transvaal G.M. Estates	16 6	—	—	17 0†	17 0†	
Van Ryn Deeps	96 0	94 0*	93 0	91 3	92 6*	93 0
Village Deeps	—		14 0*	15 0	14 0*	14 0*
Van Dyks	3 6*	3 6*	3 6*	—	3 0*	3 0*
West Rand Cons.	—	7 0†	7 0†	—	—	—
Western Rand Estates	8 0†	7 0*	7 0	—	7 0†	—
Witwatersrands	20 0†	20 0†	19 0	18 0*	—	—
Wit. Deeps	11 6	11 6*	11 6*	11 6	11 3*	11 0
Wolhuters	6 3	6 0*	6 0†	6 0	—	5 10
Zaaiplaats Tins	10 6*	—	10 3	10 6*	10 3	10 3*
Union 5 per cent.	£101$\frac{7}{8}$	£101$\frac{3}{4}$	£101$\frac{3}{4}$	£101$\frac{7}{8}$	£101$\frac{7}{8}$	£101$\frac{7}{8}$
Hume Pipes	23 9*	22 0*	23 0*	21 0*	24 0	24 3*
New States	29 0A	29 0	28 6	28 3	28 0*	27 9
General Minings	10 0†	—	—	—	10 0†	—
Kaalfontein Diamonds	1 0	0 11	0 6*	0 9†	0 7*	0 6*
Rouxvilles	24 0*	25 0†	23 9*	24 6†	23 9*	24 0†
Southern Van Ryns	9 9	10 0†	9 3*	9 6*	9 6*	9 6*
S.A. Townships	14 0	—	13 0*	—	13 3	13 3
S.A. Alkalis	24 0	23 0*	23 6	22 0*	24 0†	21 0
Transvaal Silvers	55 0†	53 3A	52 6A	—	47 6*	48 6*
Do. Options	33 9	—	32 0	30 6*	30 6A	30 0A
Tudors	1 6†	—	—	1 3†	1 3†	1 2*
Tweefontein Collieries	25 0†	25 0†	25 0†	—	25 0†	25 0†
Victory Monarchs	61 0*	61 0	—	60 0*		—
West Springs	20 9	20 9	20 6	20 3	20 0	19 6
Do. Options	—	4 10*	4 11	4 3	5 6*	3 6*

*Buyers. †Sellers. AOdd lots. BEx London.

ANSWERS TO CORRESPONDENTS.

All enquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to enquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

J. A. Newby (Ladybrand).—Daggafontein Mines 4 years' options expire Sept. 3, 1920, and give the holder the right to take up the shares at 22s. 6d. Daggafontein 5 years' options expire on Sept. 3, 1921, and give the holder the right to take up shares at 25s. In the case of West Springs the date is Jan 9, 1921, and the price 22s. 6d.

"Anxious Enquirer."—We are investigating your first and second questions and hope to reply next week. The other stocks you mention are all speculative and we cannot advise.

COMPANIES IN LIQUIDATION.

Brakpan Foundry, Ltd.; capital £8,000.
The Central African Exploration and Development Syndicate, Ltd.; capital £2,000.
Transvaal Marble Quarries, Ltd.; capital £5,000.
Standard Salt Company, Ltd.; capital £5,000.
Lourenco Marques Exploration Company, Ltd.; capital £30,000.
Glendower Salt Company, Ltd.; capital £1,500.

WM. HODGSON & SONS

(Weighing Machinists) LIMITED,

MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,

WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—

Geo. GRADOCK & Coy. (S.A.) Ltd.

Box 316. Tel Add. "Ropes" Tel. 539.

IMPORTANT TO SECRETARIES OF COMPANIES.

THE ARGUS PRINTING AND PUBLISHING COMPANY, - - - LIMITED, make a Speciality in the - - -

PRINTING OF COMPANIES' ANNUAL REPORTS,

end can execute these

IN TWENTY-FOUR HOURS AFTER RECEIPT OF COPY.

THE NEW MACHINERY LATELY INSTALLED IN THEIR WORKS is the means of their expediting this particular class of work.

ESTIMATES GIVEN ON APPLICATION TO

The Argus Printing & Publishing Co., Ltd.,

Box 1014. Lower President Street, Johannesburg.

'PHONE UP 3232. Representatives especially set apart to wait upon Clients on receipt of a Telephone Message.

WEST SPRINGS SHAFT SINKING PROGRESS.

In his annual report for 1919, Mr. C. R. Davis, the consulting engineer of West Springs, writes: Construction work to complete the sinking equipment and to provide the necessary housing for European and native employees was retarded by the building trades strike and the delays in the delivery of essential machinery. Under the conditions, excellent progress was recorded, and at the present time, aside from the non-completion of the large winder at No. 2 shaft owing to delays in delivery of certain parts, the equipment for the sinking stage is practically complete. The caving of the No. 1 shaft at the initial site led to the selection of a new position a short distance away, on ground the suitability of which was established by drilling. By the end of July the headgear and winders were re-erected and sinking operations resumed. Excellent progress was made, and the shaft at the end of the year had reached a depth of 982 feet, of which 952 feet were timbered. The dolomite formation proved to be absent and no water was encountered. No. 2 shaft: Owing to the builders' strike, the erection of the headgear was only completed in July. In the dolomite formation passed through the water difficulties were less than expected, but were sufficiently onerous for the plant at our disposal. At the end of the year the shaft had reached a depth of 591 feet, 561 feet of which were timbered. In addition, a pump chamber and sump have been cut below the dolomite, and the necessary pumping equipment is being installed. The east haulage, west face, from Springs Mines, was advanced 745 feet, to a total at the year end of 894 feet. The formation is remarkably free from disturbances. The haulage traversed payable reef for 495 feet, the average value being 14·14 dwts. over 24·62 inches, or 348 inch-dwts. The essential thing is to extend the haulage as rapidly as possible, and, therefore, the further exploration of this shoot of ore will be deferred to a later period when the work can be taken in hand without interfering with the primary development.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Greig Diamonds: A Visitor's Impressions.

To the Editor, *S.A. Mining and Engineering Journal.*

Dear Sir,—Many of your readers will probably be interested in the following account of a visit of inspection the writer made to the properties of the Greig Diamond Company, with the permission of the Directors.

By the courtesy and kind assistance of the Managing Director, I was able to make a most exhaustive examination of all their prospects. In order to enable your readers to follow clearly my account, I give a line drawing of the Company's properties. (This, unfortunately, cannot be reproduced.—Ed.) We left Wolmaranstad on the morning of March 14th and proceeded by road to the diggings at Kareepan. We entered the property from the east and upon reaching the crest of a rise running from south to north and parallel with the property a wonderful sight met our gaze. As far as the eye could see on either side of the Bamboo Creek were thousands of tents, iron huts, grass huts and crude shelters, and indescribably mixed up were the dumps, tailings and paddocks of the diggers. Eleven thousand souls, all intent on discovering nature's wealth of precious stones! The first paddock we drew up at was about 15 feet deep and the diggers engaged thereon had a cheerful smile to greet the Managing Director and Mr. M. Frames, the expert accompanying him. These diggers, acting upon the advice of Mr. Frames, had dug below what they considered bottom and to their delight had come upon an igneous complex which looked most promising. It was not unlike yellow ground and rich in fairly heavy gravel. This igneous matter had hitherto been ignored by many of the diggers and it was arranged that they should have a small wash as a test. (The writer returned to Kareepan on the 16th March and found that three beautiful stones had been discovered in the igneous complex.) From Kareepan we proceeded by road to Schwiezer Reneke to inspect the old diggings on the town lands. We stopped at various farms on the 40 mile journey and there was evidence on one or two of the farms of old alluvial wash. At Schweizer Reneke, where the Company hold the perpetual rights to the Owners' and Discoverers' claims on the Town Lands, it was evident that the alluvial had come some distance from the water worn appearance of the wash.

On Monday, 15th March, we proceeded to Lucas Kraal, N.N.E. of Kareepan and it was here that most interesting geological features presented themselves. On the high ground overlooking Lucas Kraal was clearly exposed a wide band of conglomerate showing clearly the action of fire. This wide band probably reaching to great depths, runs south-west in the direction of Kareepan and north-east until it meets the Black Reef series running to the north of Klerksdorp. A bar of this reef breaks into Lucas Kraal and crosses over the Bamboo Creek right to the N. West portion of the farm. The black reef series commences on the north-west corner of Lucas Kraal and forms a barrier, which leads to the supposition that nothing in the shape of a wash could enter Lucas Kraal from the north-east. In the centre of Lucas Kraal is a very wide pan formation, the only outlet, of which to the south is Bamboo Creek. Numerous prospect shafts have been sunk on Lucas Kraal, four of which were continued whilst the writer remained on the property. A most important connection was immediately obvious between the igneous complex disclosed about 10 feet below a lime formation of the Ventersdorp System, and the igneous matter opened up at Kareepan, in which diamonds were found on the 16th March.

The writer remembered having read in the year 1906 a book contributed to by various geologists in which the following passage occurs:—

"The facts connected with green diamonds of Klerksdorp point to the probability of the existence in the Western Transvaal of a diamondiferous matrix of a much earlier geological age than any pipe yet found. The green diamonds occur in conglomerate that is certainly not younger than of the black reef age and it is evident that to be incorporated in the conglomerate the diamonds must have been formed at a still earlier geological period. Another point suggesting the possibility of some matrix of the diamond, other than the volcanic vents already described, is the fact that the river stones of the Vaal River between Klip Spruit and Barkly West possess different characteristics from, and are invariably of very much better quality than any average parcel of stones found in any of the diamond mines in South Africa. It appears almost as if the matrix of these, and of the Klerksdorp green diamonds, might be found in the ingeous complex of the Ventersdorp series."

The conglomerate mentioned by the geologist who wrote the foregoing actually commences on the north-eastern boundry of Lucas Kraal and the igneous complex is exposed in 14 prospect shafts over an area of about 2 square miles on Lucas Kraal, and to cap all, on Wednesday a green diamond was actually found in the wash by a digger working below Kareepan in the same igneous matter that seems to originate at Lucas Kraal.

It will be interesting to see the result of the first wash on Lucas Kraal. The diamonds the writer saw at Kareepan were of the finest quality.

The Greig Company hold 5,000 morgen freehold on the Bamboo Spruit, which has its course just beyond the Company's farm Spruitplaats which, as seen in the line sketch, is north of Lucas Kraal. They also hold valuable options over farms north, south and west of their properties. When all these farms are proclaimed they will reap a splendid return in trading rights, rent, etc., amounting to probably £4,400 per month.

On Lucas Kraal the Company are entitled to 2,000 discoverers' and owners' claims, and it is their intention to work eight different prospects or mines of 200 claims each. The remainder of the farm will be thrown open to diggers at 15 per cent. royalty to the Company.

An old well sunk on Lucas Kraal many years ago and almost hidden by vegetation was inspected by the writer. Sketch "A" gives a section which is most interesting as many diggers stopped at the micaceous clay, believing that they had reached bottom, or at any rate the end of the old allvuial.

The following interesting data which was given to me will probably interest the investing public:—

The Greig Diamond Company have the perpetual lease of the owners' and discoverers' claims of Schweizer Reneke Town Lands from which they derive a monthly profit of £400. On Kareepan they own 836 morgen freehold of which half has been proclaimed and the Government have given notice to the Company to take out their owners' and discoverers' claims on the other half preparatory to the proclamation. On Klippan the Company own 300 morgen freehold and 50 discoverers' claims. On Schietpan the Company own 1,530 morgen, besides mealie crops valued at over £1,300. On Lucas Kraal the Company own:—Lot "E," 500 morgen; Lot "F," 500 morgen; Lot "G," 650 morgen. As a ranching farm apart from the diamond prospect, the farms are easily worth £5 or more per morgen.

On the commercial side the Greig Company have a monthly income of £1,000 from Trading Rights, rents and half Government licences, and, as previously mentioned their income from these sources alone when all their farms are going will give a handsome return on the present price of the shares.

E. J. KAY.

Premier Mine,
19th March, 1920.

"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 90-lbs. It is Suitable for Stoping, Raising and Driving. Low Air Consumption. It drills 30% faster than any other drilling machine.

No Mine Manager can afford to neglect the economic merits of the - - - - **'HYDROMAX'** **The Fastest Rock Drill in the World.**

We have exclusively manufactured drills for thirty-seven years and the "HYDROMAX" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
CARN BREA, CORNWALL (Wm. C. Stephens, Managing Director).

Agents— **WM. HOSKEN & CO.,**
Phones 4113/9. **Box 667, JOHANNESBURG.** **Telegrams: "HOSKEN."**

CONSOLIDATED RAND BRICK, POTTERY AND LIME COMPANY, LIMITED.

P.O. Box 609. **Telegraphic Address: "INDUSTRY."** **'Phone No. 1232.**

Manufacturers of Pressed Hofman Kiln Bricks, Downdraught Blue Building Bricks, White and Salt Glazed Bricks, Finest Ground Fireclay, and Fireclay Goods of all descriptions.

Sewerage and Irrigation Pipes and Fittings in all sizes. **Fire Bricks, Liners, Crucibles, Fireclay Blocks, etc.**

SPECIALITIES:—Pan Furnace Blocks, Drill Furnace Blocks, Loco. Furnace Arches, Baffle Bricks, etc.

Our Pipes, etc., are equal to the best English manufacture, and are largely used by the Public Works Departments, Municipalities, Contractors, the Mines in the Union and also Rhodesia.

Large Stocks of Pipes and Fittings suitable for Agricultural and Stormwater Purposes always on hand.

For samples and particulars apply to Office:—

No. 48, CULLINAN BUILDINGS,
Corner Main and Simmonds Streets, Johannesburg.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Trade Finance—Annual Report of the Mines—Dunswart Local Ironworks—Imported Iron Building Materials—Acute Shortage of Plate Glass—Electrical Goods—Commercial Exchange.

TRADE FINANCE.—Johannesburg Bank Rate, 8 per cent.; Bank of England, 6 per cent. Buying rate on London, 6 per cent.; selling rate, 4 per cent. above £500. Local trade bills, 8 per cent. Carrying scrip, 12 per cent. Gold, 108s. 4d. per oz. in London. American exchange, 15s. 9½d. per British £. Mortgage rates firmer at 8 per cent. ordinary, and special 7 per cent. Union Stock. 5 per cent., not tax., £102. Property a little uncertain. Furniture good. Gold at 100s. oz., 16 mines will be making a loss; at 90s., 26 mines; and at normal, 31 mines will no longer pay for working, which will adversely affect 14,000 European employees.

The feature of the week has been the meeting of the Chamber of Mines, when the President created rather an acute impression as to what the premium on gold was doing towards keeping the poorer grade mines, and the richer ones as well, in what one might well term an artificial prosperity. The whole position is wrapped up in the price of gold. The lucky position may not be disturbed for a year or so, but it is well to bear in mind that the price of gold is anything but a fixed item. Fortunately, the President recommends that remedies may be considered to meet the various positions as they arise, which is undoubtedly excellent. There must be great hopes in this direction, seeing that the Chamber and representatives of the Unions have steered "the good ship" through all the shoals during the War without its foundering on a strike rock. A recommendation is taken from the Low Grade Mines Commission to employ natives from north of latitude 22 degrees, and so increase the required natives to fill up all the shortage of native labour gaps in the various mines. The question of the native strike was boldly touched upon, particularly as regards their status and prospects in the mining industry, as the Chamber of Mines are beginning to recognise their great duty and obligations as gold miners, and at the same time to be fair-minded. Hence they have to recognise not only have they to make the white labour comfortable, but they also asknowledge they must make the native reasonably happy. Therefore they are assisting the natives to obtain blankets and clothing at cost price, which naturally has caused consternation amongst the Reef traders. The supplying of boots to natives to protect their bare feet from the lasceration of the rocks underground has been such a success that now the winter is coming on it is only right and just that the natives be kept warm, more particularly as we hope to get those north of 22 degrees. The old adage is treat your workmen well, and he will treat you well.

THE TREND OF BUSINESS.

Business is very much on the hand-to-mouth scale, chiefly because of the difficulty of getting goods from oversea, and there is the American exchange and the peculiar feeling engendered by the situation in Berlin. Then again, our political affairs have been sufficiently disturbing to prevent the smooth running of business, more particularly in the way of expansion or new enterprises. There certainly is a more optimistic feeling over Parliamentary matters, and everyone hopes that that will continue. One of the principals of a leading firm said they were almost shut out of the market, as, being agents for large overseas corporations, they could not do the business offering in consequence of not being able to obtain goods from either Britain or America, and regarding goods under order for various manufacturers, cables kept coming altering prices, and those always on the up grade. A lot of talk is in evidence as to a great New York bank opening at Capetown. This is all to the good, because our banks have been closing up by amalgamations, etc.; therefore any kind of competition must do a certain amount of good. One cannot well see how they are going to affect the exchange between here and New York, but if we should get Government irredeemable gold notes, the New York bank might assist by dealing direct instead of all financial affairs, as at present, coming via London, for, after all, we want to do the best we can for our own country. This week's auction sales in the property market show a little less activity than formerly, all on account of the uncertain feeling there is in the commercial atmosphere.

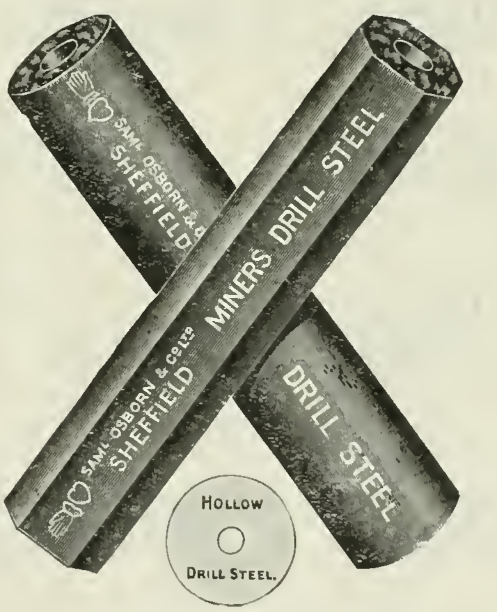
DUNSWART: LOCAL IRON WORKS.

The cost of iron has gone up excessively in England and the States, and the difficulty of obtaining this is paramount. It is almost hopeless for anybody here to send indents across the water for anything at the required cost, because they have not the slightest idea when they are going to get same. So far as Dunswart is concerned, it has always followed out its policy of keeping the price as low as possible in conjunction with its enhanced expenses, which are very heavy. Dunswart have found it necessary owing to enhanced prices generally, both as regards labour and material, to put up their price 2s. 6d. 100lbs. It has always been the object of local industries to keep their prices down as low as possible, inasmuch as they are not influenced altogether by Home prices or Home costs.

IMPORTED IRON.

It is almost impossible to obtain a mild round steel ⅜ths in town. For other sizes quotations are 37s. 6d. to 39s. 6d.; shafting, 7½d. to 9d. lb.; drill steel, 7½d.; hollow, 10½d.; tool steel, 1s. 3d. lb.; shovels, about 65s. a dozen; wheelbarrows, 70s. to 72s. 6d. Bolts and nuts are scarce and rising in price from 57s. 6d. to 80s., according to sizes. Wire nails, 52s. 6d. to 75s.; brass rods, 2s. 6d. lb.

PHONE 4673 BOX 3162


SAML. OSBORN & CO. LTD. SHEFFIELD
MINERS DRILL STEEL
SAML. OSBORN & CO. LTD. SHEFFIELD
DRILL STEEL
HOLLOW
DRILL STEEL.

OSBORN'S
"HAND AND HEART" DRILL STEEL
Solid and Hollow.
LARGE STOCKS CARRIED LOCALLY.
SAMUEL OSBORN (South Africa) Ltd.
SHEFFIELD & JOHANNESBURG.

According to the latest cables iron has advanced in England over £2 a ton. The steelplate manufacturers will not give firm prices, which prevents anything like business. In fact, the rule is that forward quotations cannot be obtained, but the price is the ruling one when things are ready to be transferred to the railway trucks. Our local firms complain that the engineers' strike at the town shops has rather badly affected business in the bar and angle iron trade. There is an idea that the engineers will resume work after the Easter holidays, as it is said that a give-and-take policy is the basis upon which the negotiations are now taking place.

TIMBER AND BUILDING MATERIALS.

Business is excellent, without any special features. Timber stocks are fair, excepting 3 x 9 solid deals. Quotations :—Deals, 1s. 10d., 2s. ; floorings, 10d., $10\frac{1}{4}$d. ; ceilings, 7d., $7\frac{1}{4}$d. ; galvanised iron, 1s. $6\frac{1}{2}$d. to 1s. $8\frac{1}{2}$d. ; galvanised flat sheets have risen to 62s. 6d. per 100 lbs., as the plumbers are buying freely of that and similar things for the purpose of finishing a large number of new premises on the road to completion. The competition must be still fairly keen, as tenders for a complete sanitary service, hot water and baths, might be termed very reasonable indeed. There is still a great scarcity of sanitaryware pipes for anything like immediate delivery.. Some jobs are said to be hung up waiting for such delivery. Cement also is very scarce, and when one wants a few bags for immediate use the recognised price is about 15s. Bricks are just as scarce as ever, but an idea prevails that things may be easier very shortly, as the yards, and more particularly the Reef yards, are partially catching up the requirements. The painters are said to be not so well employed, as the rush has been checked by the aftermath and rainy weather. The rough painters are getting a certain amount of work on roofs and fencing, but obviously the rains interfere with that also. Turps is the extraordinary price of £9 10s. a case of 2 4's and £10 for 10 1's, and these are refilled in Johannesburg. It is very difficult to get any quantity of turps more than a bottle or so. The scarcity of plate-glass has become quite acute, and there seems a poor chance of getting replenishments.

SECOND-HAND IRON AND TIMBER.

Owing to lack of supplies, the second-hand timber and iron business is almost at a standstill, nor can dealers say when the present depleted stock will be replenished. On our round this week, we could not but notice how bare the yards appeared of materials in comparison with even a few weeks ago. As a matter of fact for second-hand timber and iron there are no quotations available owing to a dearth of stocks. There is difficulty in getting second-hand bricks, although one sees quantities being taken down, but these are scraped at once and the carts are ready to take them away for immediate use elsewhere. These even include the old "Kimberley" sun-dried variety

ELECTRICAL GOODS.

In general there has been no increase in prices, except in ceiling roses (and lamps), which in the absence of anything like fair supplies, have been commanding much enhanced figures. A consignment of these, however, is expected towards the end of the present week. Wiring and tubing remain much about the same. Lamps have gone up about 25 per cent. during the past month, which figure would have been much exceeded, but for the fairly large stocks; as replacements, however, cannot be made at anything like the present quotations, as soon as the current stocks are exhausted—a contingency of not too long duration—a much higher level is expected. As a matter of fact, in face of prices ruling oversea, higher levels generally for all electrical goods are confidently predicted. Town and country business remains fairly good.

COMMERCIAL EXCHANGE.

Things on 'Change are very poor this month, in fact the whole month has been a poor one according to one of the leading merchants. Another says that no mines are buying anything more than they want as every manager is pledged to the most rigid economy. Hence there is no outstanding feature. There is a very fair demand from the agricultural community for barbed and fencing wire, as they seem almost of one accord to be going in for fencing their farms. Barbed wire is 60/- per 100 lbs. and 50/- for 66ibs. ; fencing wire 50/- per 100lbs. ; black baling wire 40/-. There has been more than the customary discussion over the Chamber of Mines report and the importance the gold premium has on the welfare of these fields, as naturally the mining material merchants are so wrapped up in the future requirements for the mining industry. It might be added that at present the feeling is not very pessimistic as we have seen so many crises that somehow or other have been muddled through.

SURVEYORS.—Wanted for large Railway.
Survey Engineers and Surveyors experienced in location work. Write Box S, c/o Dawsons, 17, Craven Street, London, W.C. 2, England.

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7in.)

COULD PRODUCE

Rounds and Squares (to 6in.), Channels, Joists, Tees, Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address : "MAUBROWN," Johannesburg.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams : "THAINE."

Company Meetings.

FERREIRA DEEP.

The eighteenth ordinary general meeting of the shareholders of the Ferreira Deep, Limited was held on March 24, in the board-room, Corner House.

In moving the adoption of the report and accounts the chairman, Mr. H. C. Boyd, said:

Gentlemen, The amount of ore milled during the 12 months ended September 30, 1919, covered by the report and accounts before you, decreased very considerably to 414,890 tons, partly owing to the poor supply of native labour during the period, but mainly because of the reduced number of stope faces available. As the consulting engineer points out, there are now very few high grade faces left; the exhaustion of these became more noticeable during the last quarter of the financial year, causing a marked reduction in value in the recovery as compared with the rest of the year. Largely owing to the precautions taken in No. 1 incline shaft we are able to report that the interruptions to hoisting from movement of the ground were much less numerous than in recent years. Towards the end of March milling ceased at the Outcrop plant, the capacity of the "Deep" section of the reduction works having been raised at small expense to 36,000 tons monthly. Considerable saving in operating expenditure resulted, and the gold clean-up from the Outcrop plant helped to maintain the recovery at a higher figure than could otherwise have been expected. 31s. 4d. per ton, on the normal price of gold. Costs, per ton, milled rose naturally with the decreased tonnage, but in addition increased expenditure had to be faced in regard to wages and supplies, bringing the total to 25s 1d., the highest recorded for very many years. Including £17,911, the estimated increased price to be received for the gold shipped between the 25th July and the close of the financial year, there was a net profit on all operations of £150,278 to which must be added £6,059 received from forfeited dividends and Bewaarplaats monies. From this total dividends amounting to £122,500 were paid and taxes £21,843, while the net debit to capital account as is explained in the directors' report, was £5,797. Of the unappropriated balance of £154,091, carried forward, £83,263 were net cash and investments after allowing for liabilities. The development operations of the past year were mainly in the south-east section of the property, much of which proved to be unpayable, but there were favourable disclosures of pyritic footwall reef on two levels east of No. 1 shaft and of payable leader in the neighbourhood of the Village Main boundary such as fully warrant the expenditure incurred in diamond drilling and development. Several agreements were entered into with neighbouring mines, as detailed in the manager's report, for the more effective dealing with the areas concerned. In the case of the Robinson Deep boundary pillar a cash payment of £17,500 was involved. Taken as a whole, these arrangements are working out satisfactorily for the company. A little over 131,000 tons were developed of an average value of 7.6 dwts. and the ore reserve at the close of the year was estimated to be some 807,880 tons, averaging 8.2 dwts., a decrease of about 124,500 tons, but an increase of .2 dwt. in value compared with the previous estimate. In addition there were at least 242,000 tons of broken ore in the reef packs in the mine.

Western Development.

Reference is made in the manager's report to the possibility of the Main Reef proving payable in the western section of the mine. Development of this reef is being energetically carried on during the current financial year, and there is reason to believe that a large tonnage exists which, though variable in value, is eminently payable so long as a material gold premium obtains. The reef is generally wide and lends itself to cheap working; by the aid of Jackhammers, as much as 20 tons are being broken per native per shift, and a ton can be landed at the surface for 9s. The pyritic footwall reef is also looking decidedly promising, but the information so far available about it, especially in regard to the lateral extent over which it will prove payable, is insufficient to enable a decided opinion to be formed of its possibilities. This financial year we are benefiting by the enhanced price of gold, but against this all expenses tend to rise and lately large increases in salaries and wages have been granted. The serious effect of any marked diminution in the price of our product need not be emphasised. We are continuing to realise all surplus plant, etc., and sales to the value of £7,391 have been effected during the past five months.

It is with deep regret that we have to record the death on active service of Mr. Burley, late mine captain, and of Mr. Sumner, shaft timberman, killed in action. Altogether, 24 of the company's employes gave their lives for their country during the war. It is hoped that shortly a permanent memorial will be erected on the mine to the memory of these gallant men.

It once more affords the board much pleasure to testify to the valuable services which the consulting engineer, the manager, and the staff generally have continued to render.

The report and accounts were adopted.

The retiring directors were re-elected.

Mr. Samuel Thomson and Messrs. C. L. Andersson and Co. were reappointed auditors.

WOLHUTER GOLD MINES.

The twenty-second ordinary general meeting of shareholders of the Wolhuter G.M., Ltd., took place on March 24, in the board-room, Corner House, Mr. H. C. Boyd presiding over a large attendance.

In moving the adoption of the report and accounts for the year ended on October 31, 1919, the Chairman said: Gentlemen,—The native labour supply was generally quite inadequate throughout the year with which the report and accounts before you deal. Consequently, only some 348,990 tons were milled or about 34,000 tons less than during the previous year. Fortunately, apart from the gold premium which gave us £18 599 extra revenue, the recovery was 10d. per ton higher and helped somewhat to neutralise the higher expenditure which was mainly due to increased wages and cost of supplies. The latter, as the manager reports, had risen by 21 per cent. at the close of the financial year as compared with two years before, while from last August the assessment under the Phthisis Act was raised to more than four times the previous amount. Including the above gold premium the net profit for the year was £64,134, out of which two dividends totalling £43,000 were paid. Taxes and the under mining rights' annuity, after the deduction of the proceeds of the sales of plant and bewaarplaats money, absorbed £14,682 and the balance carried forward was increased to just under £61,000, of which nearly £19,000 were represented by cash and investments, after the deduction of liabilities. As you will recollect, it was only in the south-east corner of the property that intact ground of any extent remained to be developed at the beginning of the financial year. Active development of this area was continued and, although it is very considerably faulted the exposures as a whole were more favourable than expected, the south reef showing 75 per cent. payability with a value of somewhat over 6 dwts. The values of the main reef and leader, however, indicate that only a small tonnage on these reefs will be payable. Of this normal development but little remains to be done, and for the future our activities must be mainly confined to the continuance of the subsidiary development of old blocks as mentioned in the consulting engineer's report and reclamation work in the old stopes, both of which have yielded satisfactory results such as are calculated to extend the working life of the mine at least a few months. In connection with this, it is interesting to note the very material increase reported in the amount of ore for the mill reclaimed from old workings during the past year.

Ore Reserves.

The ore reserves at just under 691,000 tons, averaging 5.7 dwts. per ton, show the natural decrease in tonnage to be expected at this stage in our mine's existence. In framing the estimate the pay limit of the previous year was retained, but it is to be noted that there are in addition 105,000 tons, averaging 4.3 dwts., which should be profitably mined under existing conditions as to price of gold and cost of working. Thanks to the increased price at which the value of the output has been estimated, the working profit for the first four months of this financial year shows a material advance on last year's results: this after estimating the as yet unrealised gold at a conservative figure compared with ruling prices, and allowing for the large increase in wages which has recently been agreed to. I need hardly point out that any appreciable decrease in the value of gold would sweep away the greater part of the profits now being earned. As the consulting engineer states, with the reducing number of available stope faces and, dependent as we are to so great an extent on the result of subsidiary development and reclamation, variations in grade and profits must be anticipated; but if a satisfactory labour supply is maintained it is to be expected that the present scale of operations will continue during this financial year. Our native labour force is at present ample for our requirements, and I am glad to say that our natives remained quietly at work during the recent strikes on other mines. To an appreciable extent this is doubtless due to the tactful manner in which they were handled by the officials concerned. We have pleasure in again expressing our appreciation of the valuable services rendered by the consulting engineer, manager and staff during the period under review.

Mr. F. W. Baxter: Can you make any suggestion, Mr. Chairman, as to what the dividend is likely to be?

The chairman: It will only be considered next month. I consider it will probably be 6¼. So far as we can see, we will slightly increase the carry forward.

The report and accounts were adopted.

The retiring directors were re-elected.

Messrs. H. J. Macrae and H. G. L. Panchaud were re-appointed auditors.

Rylands, Brothers, Ltd.

Wire and Wire Rope Manufacturers,
WARRINGTON, ENGLAND.

Actual Manufacturers from the Raw Material to the Finished Article.

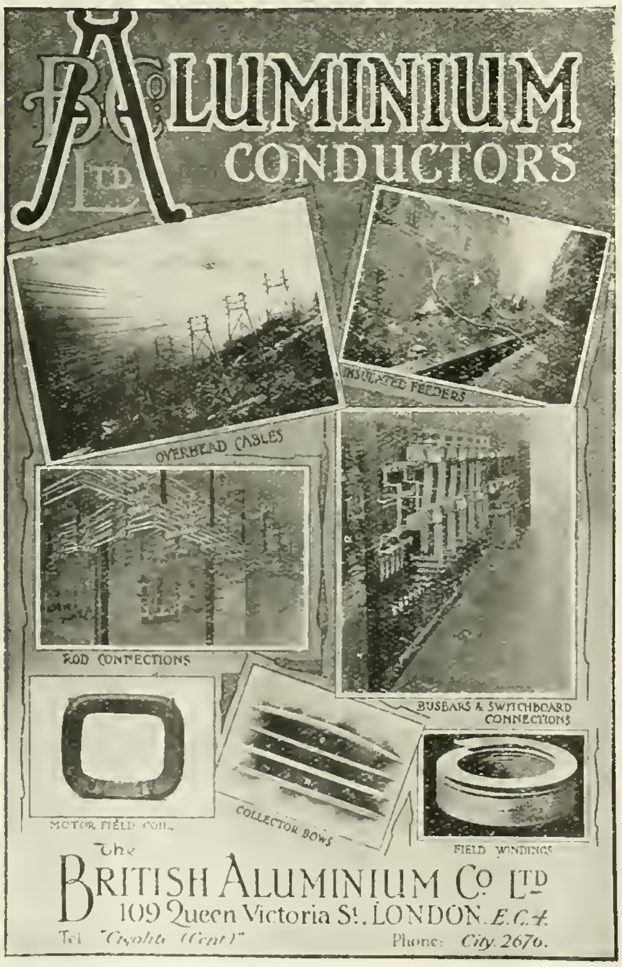
Special Quality High-Grade Winding Ropes for Mining Work.

All British Manufacture.
Highest Quality.
Moderate Price.

Sole Representatives for South Africa :

HARRISS, MILLER & CO., LTD.

Engineers :: :: Cullinan Buildings, Johannesburg.
Cable and Tel Address : "HARMILCO." P.O. Box 5867. Telephone No.—Central 4563.
Also at DURBAN, CAPE TOWN, SALISBURY and BULAWAYO, RHODESIA.


BAC LTD
ALUMINIUM CONDUCTORS
INSULATED FEEDERS
OVERHEAD CABLES
ROD CONNECTIONS
BUSBARS & SWITCHBOARD CONNECTIONS
MOTOR FIELD COIL
COLLECTOR BOWS
FIELD WINDINGS
The BRITISH ALUMINIUM Co LTD
109 Queen Victoria St. LONDON. E.C.4.
Tel "Cryolite (Cent)" Phone: City 2676.

South African enquiries to—
P.O. Box 1905, JOHANNESBURG.

OXY-ACETYLENE
WELDING AND CUTTING PLANT MANUFACTURERS.
Complete Equipments.

McGOWAN, WILD & CO.,

"ECONOMIC" WELDING BLOWPIPE, the most Efficient and Economical on the market.
Suppliers to the Trade of all Accessories for Welding and Cutting.
OXYGEN-PRESSURE-REGULATORS, CAST-IRON WELDING STICKS, FLUXES for Cast-Iron, ALUMINIUM, BRASS, COPPER, PURIFYING MATERIAL, TUBING, Etc.
Stockists : JENKINS & CO., Greenmarket Square, CAPE TOWN.
Sole Representatives for South Africa :—

MACLACHLAN & CO.,
ATHENIAN CHAMBERS, SHORTMARKET ST., CAPE TOWN.

ASBESTOS

HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables : "HOBNAILS."

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] APRIL 3, 1920. [No. 1488.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: "**MINING JOURNAL.**"

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 97
Topics of the Week:
The Gold "Premium" and the Low-Grade Mines 99
Vereeniging-on-Vaal 101
The East Rand Ore Reserves 103
The Position of the Princess Estate 104
The Year with the Geduld 104
Annual Review of the New Kleinfontein 105
Improved Results from the Modder Deep 105
Rand Water Board 106
The Outlook for Modder B. 107
The Prospects of the Rose Deep 108
The Year with the Rhodesian Mines 108
What the S.A. Mines Buy 109
Correspondence and Discussion: "The Drilling of Deep Boreholes"; "Jackhammer Rigs" 111
The Encouragement of Prospecting 112
Standardisation of Mining Practice 113
The Position of the Kolmanskop Diamond Mines ... 114
The Week in the Sharemarket 115
Trade and Industries Section:
The Week in the Mining Material and Engineering Trades 117
Company Meetings: Jupiter 119

Notes and News.

Accident at Randfontein Central.

The secretaries to Randfontein Central write: "We beg to advise you of the despatch to-day of the following cable to our London office: 'Serious accident has occurred at Block A. shaft. Portion of hanging wall fell away at 10th level and stripped shaft to 19th level. Will seriously interfere with tonnage crushed and average grade for three months.'" We are glad to know that the accident involved no loss of life; indeed, it appears that there was no one hurt.

* * * *

### The Diamond Market.

The latest report from the London diamond market states: "This week the Diamond Syndicate is showing a shipment of Bultfontein goods, and it would not be surprising to learn that prices of the stones—whether only of certain or of all sizes we do not know—have been advanced to a small extent. The run on diamonds is nothing less than phenomenal. We hear of shipments of brilliants being made to various parts of the world, and particularly to Indo-China. As at the moment the great bulk of the stones go to countries where the exchange is adverse to Great Britain, a small addition to the price is not likely to check the demand; in fact, nothing seems to have any effect in this direction. Buyers still complain of shortage of supplies, a condition, by the way, which will rather be aggravated than alleviated as time goes on."

* * * *

Mount Ayliff Syndicate.

The Mount Ayliff Syndicate, Ltd., has been formed with a capital of £25,000, in 24,750 £1 ordinary and 5,000 1s. "Management" shares, to explore and test the ore deposits on the Insizwa Range, in Cape Colony, owned by the Insizwa Nickel, Copper and Cobalt Developing and Mining Company, Ltd. The holders of the ordinary shares are entitled to 80 per cent. and holders of the "Management" shares to 20 per cent. "of the profits which it may be determined to distribute." The "Management" shares, moreover, carry five votes each, thus giving them the majority of the voting power of the syndicate, although, by a curious omission, the prospectus fails to say who will receive or subscribe for them. The well-known mining engineer, Mr. W. H. Goodchild, M.I.M.M., F.G.S., states that "there can be no question of the attractiveness of the scheme as a mining enterprise."

* * * *

A Geldenhuis Deep Strike.

The mill of the Geldenhuis Mine was idle from Friday to Monday last on account of a strike of reduction workers. The dispute was over the placing of a man brought from elsewhere in one of the higher positions in the reduction works, this being resented on the ground that one of their own number should have been promoted. The management refused to withdraw the man on their demand, and in consequence nearly the whole of the employees in the reduction plant struck. The Chamber of Mines claimed that this was a violation of their conciliation agreement, but the men took up the attitude that they were prepared to continue working and allow the matter to go to the Board of Reference provided that in the meantime the man in dispute was withdrawn. The Chamber, however, held that the management was within its rights in putting the man in the position which he occupied, and that the onus was upon the men to continue until the Board of Reference decided. The general secretary of the Industrial Federation put before the strikers the fact that the Federation's policy embraced two resolutions passed at the Bloemfontein Conference—that negotiations should be carried to the point of exhaustion before precipitate action, and that the consent of the central authority (in this case the Federation) should be obtained before a strike eventuated. Upon this the men decided to return to work on Monday, and the Board of Reference will meet immediately.

The "W.A.S." Show.

Sir Lionel Phillips opened the annual Show of the "W.A.S." this week—which is quite a record in number and quality of exhibits—and had something of interest to say of the future of mining and agriculture. In the course of his speech, Sir Lionel Phillips referred to the Agricultural Show as "our baby," and traced the history of the society from the time when the gold mining industry first interested itself in the matter. Some people had thought he was mad in wanting an agricultural society; but he thought the organising brains which had made a success of the mining industry ought to devote their energy, in this country, which was then very backward, to advancing, so far as they could, the real staple industry of South Africa. Commenting on the wonderful progress made, Sir Lionel thought Johannesburg ought to lead the van in the agricultural progress of this country. This country, he said, had been built up and was still running mainly on its mineral industries. The mineral industries were first of all unstable, and although their life might still be long the day would come when they would decline. There was no reason why the general prosperity of the country should be allowed to decline also, for they had only to put their backs into it and use their energies to secure a wealth-producing land which would continue to produce year after year. It only remains to add that the Show has been an outstanding success from every point of view this year, and that it has had the enthusiastic support of the mining and business community.

* * * *

The Coal Mining Outlook.

In dealing with the Transvaal coal mining outlook, at the annual meeting of the Chamber of Mines last week, Sir Evelyn Wallers said that the Collieries Section of the Chamber has not shared the good fortune of the gold mines in finally, if temporarily, getting an improved price for their product. In 1919 the average price for Transvaal coal was 5s. 1·4d. as against 4s. 5·55d. in 1914. "It is clear," he said, "that this small increase cannot possibly cover the increased costs due to the shorter working hours which have been introduced and to the increases both in wages and in the price of stores; indeed, several of the collieries working under unfavourable conditions may be compelled to close down. The increase in the price, such as it is, is due almost entirely to the better price received for bunker and export coal. Of the 6,622,313 tons produced in the Transvaal during 1919 (an increase of 183,352 tons over the previous year) only 1,030,909, or less than 16 per cent., was taken for the export and bunker trade; and it may again be emphasised that this is the chief opening for expansion. During the year the demand for export coal was much in excess of the available seaborne transport; and, even if this had been obtainable, the South African Railways were not in a position to deal with the overland transport to the ports. For years the Collieries have laboured under serious disabilities owing to shortage of trucks. It is to be hoped that, with the arrival of additional engines and rolling stock, they will at an early date enjoy their daily requirements of truckage. That coal should be produced upon the most economical basis is to the interest of every industry and every individual in the country—not least of the S.A.R.; and to this end it is imperative that transport facilities equal to the needs of the collieries should be provided."

* * * *

The Question of Trading with Mine Natives.

The vexed question of trading with mine natives was very clearly explained by Sir Evelyn Wallers at the recent annual meeting of the Chamber of Mines. "There have been considerable complaints from the natives employed on the mines against their treatment by the storekeepers along the Reef," said Sir Evelyn. "While, no doubt, there are mine traders who treat their native customers fairly, I fear it cannot be doubted that some of these complaints are only too well founded. In some cases the natives have boycotted stores and, during the native strike, some of the storekeepers closed their stores from fear of active violence. It may be time, therefore, that the mines took into their own hands the supply to their native employees of at any rate necessaries and 'necessary luxuries,' and this matter is receiving very careful consideration. The Inter-Departmental Committee on Native Trading on Mines reported, last September, that they could 'see no reason why mine owners should not cater for the needs of their native employees or that their doing so should necessarily involve the adoption of the closed compound system'; and it is common knowledge that such catering, as practised at the Premier Mine and at Kimberley, has given much greater satisfaction than the method at present obtaining upon these fields. Of course, it is essential that the mines should make no profit out of such trading; and this proviso will automatically protect the commercial community against any unreasonable extension of the system. There has been some comment in the Press recently on the steps that the industry has taken to supply its native employees, to a certain extent, with blankets and some articles of clothing at cost price. All I need say on this matter at the moment is that the memories of a section of the public would appear to be extraordinarily shortlived. A few weeks ago we were in a situation of extreme gravity in connection with our native workmen which was fortunately adjusted. But it will recur, and what we must remember is that this question of enabling our natives to obtain certain goods at as low a price as possible is one aspect only of an exceedingly complex problem that affects the whole of this community and which, therefore, must be tackled by the industry in the interests of the community as a whole."

* * * *

"Closing Down."

We are not in the least surprised that a great deal of indignation was expressed in the House of Assembly at the action of the Cape Copper Company last year in suddenly closing down their mines at Nababeep and throwing several hundred men out of work at a moment's notice. The company's action was all the more heartless inasmuch as the mines were situated in a remote part of the country where no other employment was procurable and an immense amount of suffering was bound to result. Moreover, according to Sir David Harris, the company had large sums in reserve at the time of closing down. Such conduct has been very rare indeed, if not unprecedented, in South African mining history, but we are not surprised that there was a strong demand from many parts of the House that legislative measures should be taken to prevent its recurrence. The *Cape Times*, however, points out that there are obvious difficulties in the way. Something might be done if the Transvaal and Free State mining law, which enables the Government to hold an inquiry before any mine can be closed down and to take the mine over on lease if it sees fit, were extended to the whole Union. But this would not remove the difficulty. A company cannot reasonably be expected to continue mining operations on a mine which has been worked out; otherwise we may be pretty certain that very little capital would be procurable for mining development. On the other hand, good mining management can foretell with a fairly high degree of accuracy the probable date at which the yield will be insufficient to pay working expenses and interest on capital. Such being the case, it might well be laid down as a principle that no mine be allowed to close down without ample notice to its employees, or alternately without making reasonable provision for their needs and for their transfer to other spheres of employment. The Central Unemployment Bureau, which is projected in terms of the resolution of the Washington Labour Conference, might become the medium of communication in such a case. The company or employer would, under such a scheme, be required to give due notice of intention to close down the mine or the works, and the Bureau would then set itself to the task of finding suitable employment for the men discharged. It is intolerable that a board of directors, sitting in London, should have the power to terminate at a moment's notice a great mining enterprise and to throw many hundreds of men into the direst distress. If means can be found to recover from the company directly concerned the costs which the country has been compelled to incur as a result of their very heartless action, the public would be well pleased.

The Gold Question in Parliament.

The debate was resumed in the Assembly on Wednesday on Col. Creswell's motion: "That it be an instruction to the Select Committee on Public Accounts to inquire into and report to the House not later than April 23 on the effect on the cost of living of the embargo at present placed on the export of specie." The Minister of Railways expressed appreciation of the moderate manner in which the question had been raised by Col. Creswell, but did not agree that the inquiry which Col. Creswell wanted should lead to the removal of the embargo. In the past, he said, there had been a regular drain of gold to the East, but there had been a steady return of such gold through the Portuguese banks. Since, however, our gold had been sent to India, there had not been this return. In addition to the normal loss that there used to be, he continued, the embargo had in recent months led to an organised smuggling trade. The gold holdings of the banks had decreased from £6,900,000 at June 30, 1914, to £6,542,000 at December 31, 1919, and as we had imported during the interval about £6,000,000 in gold coin, there had been a leakage of about £6,500,000, and in the last few months the matter had become acute, the leakage during that period amounting to over £1,300,000. Col. Creswell's speech had rather seemed to indicate that the banks and large interests such as the mines had been at fault. He would say at once that the banks were not at fault, as they had throughout the War done their utmost to import gold, which, however, was needed for the carrying on of the War. The Union Government had throughout the War also done its utmost in the same direction, and it was largely due to those efforts that the position was not worse than it was. It was only within the last six months, since the mines had had free markets for their gold, that the banks had been able to secure the coin they needed. Regarding remedial measures, Mr. Burton referred to the recommendations of the Gold Commission, which had gone into the whole question. Recommendations had been made in regard to exchange—that was a matter entirely beyond the Government. As to the establishment of a mint, plans had been got out for a mint of a capacity to deal with the total output of the Union, but the expense was so great that those plans might have to be reduced. The refinery was also well on the way, and an engineer and five draftsmen were engaged on the work. Tenders were to be asked for the erection of the building. The refinery and mint to be established would be the largest in the world. In these circumstances it was as well to see that the whole scheme was worthy of this country. He added that Col. Creswell had proposed that the Public Accounts Committee should go into the embargo on the export of gold coin, but he (Mr. Burton) proposed to give the inquiry a wider scope. The Government had prepared certain Bills to submit to the House, and he therefore moved as an amendment to the motion: "That a Select Committee be appointed to inquire into and report upon (a) the effect of the embargo on the export of specie on the cost of living; and (b) the desirability and practicability or otherwise, with a view to improving the economic conditions of the Union, of removing the embargo and of modifying the statutory provisions now in force in regard to currency and banking." This amendment was, after a debate, carried unanimously.

* * * *

S.A. Association for Advancement of Science.

The annual meeting of the Association will be held in Bulawayo during July, 1920, and an excursion to the Victoria Falls has been arranged to take place at the close of the session. A visit to the Southern Katanga plateau is also under consideration. In order to ensure the comfort of members attending that meeting it is imperative that notification of the intention to attend should be made to the Assistant General Secretary, P.O. Box 6894, Johannesburg, immediately, so that the necessary train accommodation may be made for the journey, and hotel and other necessary accommodation may be arranged for in Bulawayo and at the Victoria Falls. Should sufficient members intimate their intention to attend the meeting at Bulawayo, it is proposed to charter a special train to leave Johannesburg on or about Monday, 12th July, 1920. This will enable travellers to obtain a special tariff on the dining cars and also at the Victoria Falls Hotel, and a reduced railway fare over the Rhodesian railways.

TOPICS OF THE WEEK.

THE GOLD "PREMIUM" AND THE LOW GRADE MINES.

The steadily diminishing "premium" on gold reinvests the problem of the low-grade mines with renewed acute interest and importance. At the annual meeting of the Rhodesia Chamber of Mines held last week, the uncertainty regarding the premium was emphasised, and a similar warning to that issued by Sir Evelyn Wallers at the Transvaal Chamber of Mines' meeting was given. The gold mining industry of Rhodesia has certainly been aided by the gold premium, but as Mr. George Mitchell pointed out, and as is made exceptionally clear by Sir Evelyn Wallers, this is a precarious base upon which to build. The premium in the case of Rhodesia last year converted the decreased output into an actual increase of £211,604 in value. It is to be feared, however, that this higher price was fully counter-balanced by the extra cost of materials and of labour. Speaking with regard to the premium on gold, Mr. George Mitchell said that there was about a false sense of security, and a tendency to think that because the premium on gold at the moment was high everything was well. As a matter of fact, the position was bristling with danger, because, while costs were soaring, yet they had to remember that there was no guarantee that the premium would remain as it was to-day. If they had a fall in price, and at the same time were not able to reduce their costs, it would mean the shutting up of certain properties. On the Rand, of course, the position is exactly the same. Last week the retiring President of the Transvaal Chamber of Mines showed how the premium on gold, producing an additional £3,000,000 for the Rand industry during the last five months of 1919, came only just in time to prevent the closing down of nearly half the mines and the throwing out of employment of over 10,000 European workers. A fact to be remembered is that gold itself has not appreciated in value, but the currency has depreciated. This last will not be remedied until the world has got rid of a large part of its redundant paper currency and there has been a vastly greater production of the chief necessaries of life. Before the process of readjustment has gone far the gold premium may have disappeared, which will bring a worse crisis than ever for the mining industry unless its working costs can be reduced. The Low Grade Mines Commission last year showed that 21 mines on the Rand had been working for three months at an average loss per ton milled, spending £6,500,000 per year in wages and £4,800,000 on stores to produce that result. The problem will recur in a worse form with a drop in the gold premium. The only remedy, as pointed out by Sir Evelyn Wallers, is the closer co-operation between employers and employed and a thorough understanding by every section of the community of the elementary facts of the case. The March returns from the low-grade mines of the Rand will, we fear, prove none too reassuring, and unless there is some hope of the "premium" being maintained, the outlook is none too bright. It is not too much to say that in the case of several mines the proceeds of the premium are entirely swallowed up by increased cost of labour and stores and the position is no better than before. The sooner the facts are appreciated and the danger realised the better for all concerned. Sir Lionel Phillips reminded his hearers at the opening of the Witwatersrand Agricultural Show on Wednesday that the mineral industry was in its nature transitory. If the gold "premium" continues to run off at its present rate we may all at no distant date, both in the Union and Rhodesia, have a very rude and forcible confirmation of the truth of that reminder. As Sir Evelyn Wallers put it, "it is of no use to delude ourselves or others with the idea that this premium on gold is going to be permanent. Sooner or later, and I do not think that anyone in the world has the knowledge necessary to prophesy how soon or how long it will be before the change comes about—gold will return to its permanent standard value. When that time comes, we shall be faced with the necessity of adopting one of two alternative policies. Either half the industry must be closed down, with the resulting unemployment to which I have referred above, or the costs of production, including the costs of labour, must be reduced."

SIEMENS BROTHERS

& CO., LIMITED.

RUBBER CABLES.

PAPER CABLES. FLEXIBLES.

"STANNOS" WIRES.

ENAMELLED WIRES.

TELEGRAPH CABLES.

TELEPHONE CABLES.

JOINT BOXES.

COMPOUNDS. TAPES.

CABLE APPLIANCES.

EBONITE.

TELEGRAPHS.

TELEPHONES.

RAILWAY, MINE, SHIP
AND
POWER STATION
SIGNALLING.

FIRE ALARMS.

TUBULAR POLES.

LATTICE POLES.

OVERHEAD LINE MATERIAL.

FLUID & DRY CELLS.

SIEMENS BROTHERS & CO., Limited, Woolwich, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.— Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa :

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. BOX 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

VEREENIGING-ON-VAAL.

An Investigation into one of the Chief Industrial Centres of the Union.

III.—The Collieries and Brick and Tile Works—Position at the Cornelia and Camp Mines—An Immense Coal Field—Busy Days at the Brick and Tile Works—Products in Big Demand—Vereeniging's Magnificent Prospects.

In the two previous articles of this series we have dealt with the history of the Vereeniging enterprise, the general industrial activity and outlook of the place, and with the Union Steel Corporation. In this article we propose to deal with two other important Vereeniging industries—the coal fields and the brick and tile factory.

The Coal Mines.

The coal field at Vereeniging is of enormous extent—it is indeed calculated by expert opinion that the area could produce a thousand tons a day for the next thousand years. Three collieries have been opened upon this area, the Central and the Camp on the Transvaal side of the river, and the Cornelia on the Orange Free State bank. Of these three workings, active operations are at present proceeding on the two last named properties only. The present output is derived from the Cornelia Colliery. At the Cornelia Colliery the main shaft intersects the coal seam at a depth of 150 feet; the average depth of the coal seam from surface is 150 to 300 feet, the seam undulating considerably throughout the coal field. The average thickness of the seam is 8 feet, but in places the thickness is as great as 20 feet. The mine is very wet, and about a million and a half gallons per diem are pumped out of the workings. To illustrate the necessarily high capacity of the pumping plants in another way, it may be stated that for every ton of coal won from the workings 4·6 tons of water are pumped.

The Brick and Tile Works at Vereeniging.

Large Output Capacities.

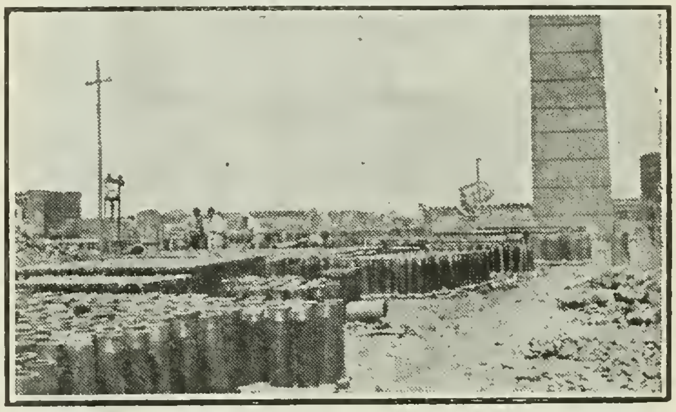
This company recorded an output of 48,700 tons in February in respect of 24 shifts, and in September last the output was 56,000 tons for 26 shifts. Under favourable conditions the property could raise between 60,000 and 70,000 tons of coal per month. Coal is cut by means of Siskol, Ingersoll and Radiolax machines, and Sullivan electric chain cutters have just been started up. Work in connection with the south-eastern haulage—a vital point of development—has just been commenced. As evidencing the self-contained nature of the Vereeniging enterprise, it may be stated that 75 per cent. of the timber used in the coal mines comes from the Estates' plantations on Maccauvlei.

The Camp Colliery.

At the Camp Colliery on the Transvaal side of the river a circular 18 feet brick lined shaft has been sunk 140 feet to the horizon of the coal. From this a tunnel 3,250 feet long has been driven below the bed of the Vaal River. This tunnel, which is of 12 feet by 6 feet dimensions, is now on the edge of the coal field, and when development from this tunnel is completed the two collieries (Cornelia and Camp) will have a combined output capacity of 100,000 to 120,000 tons per month.

The Brick and Tile Works.

A glance at two of the photographs accompanying this article will convey some idea of the magnitude and busy activity of the brick and tile works. The company manufactures a variety of products, all of which command a ready sale. Amongst the leading lines turned out by this company are repressed facing, vitreous blue, pressed and wirecut building bricks, fireclay bricks and furnace specials; glazed stoneware pipes and fittings for sewage water service, land drainage, etc., roofing tiles, paving quarries, "klompjes," silica and magnesite goods, acid-proof ware, wine and covered jars, red land drainage pipes (unglazed). There are 32 kilns at the brick and tile factory, and the pipe and brick works are each self-contained. The output of bricks is 600,000 per month, and arrangements are now being made for an output of more than double this amount. Various kinds of bricks, in addition to those used for ordinary building requirements, are produced; there are, for instance, the magnesite and silica bricks employed in the steel works. Seven different kinds of clays are employed, and these are all obtained from within two miles of the works. Magnesite is obtained from Melalane and silica from the Modderfontein factory. The company does a large turnover in pipes for irrigation and municipal purposes, and is turning out 33 tons of casks and jars of various kinds per month. Other products are gas retorts, nitrating jars and condensation pipes for use in explosives factories, junctions for general sewage work, and floor and roof tiles. All these products find a ready sale. Both material and workmanship are first-class, and the company is in fact unable to cope with all the orders which have been placed with it.



Vereeniging Brick and Tile Works: Another View.

A SUMMING UP.

Sufficient has been written in the foregoing article to denote the busy industrial activity which prevails in and around Vereeniging and to broadly define the scope of this remarkable and highly important enterprise. As we said in the earlier portion of these articles, Vereeniging cannot but help going ahead. The conditions which obtain there are so ideal for the development of industry that retrogression really seems to be out of the question. Water in plenty, coal by the square mile, cheap power, good climate, abundance of timber, fertility of soil, and an eminently central situation in regard to the whole of Africa south of the Zambesi River give Vereeniging a position of unparallelled advantage. The various enterprises based on Vereeniging we believe to be the most practical step so far taken in South Africa towards making this a self-supporting country, independent of the vagaries of overseas commerce and finance, and capable of making South Africa a foremost figure in world politics and industry. Quite apart from its industrial prosperity and prospect of profitable expansion, Vereeniging is a training school in which the youth of South Africa is being taught many useful branches of manufacturing handicraft. For this reason if for no other the Vereeniging Estates deserves the fullest measure of sympathy and help from the Government and the people generally of this country.

HEADGEAR AT MAIN PIT, CORNELIA COLLIERY.

In the *Bulletin de la Societe D'Etudes Coloniales* (Brussels), Mr. Andre van Iseghem, District Commissioner at Elisabethville, writes of the Belgian section of the Benguella Railway that after having left the Kambove-Bukama line at Tshilongo the line will proceed westwards and across the Lualaba on a rather important bridge. It will then tap the mines of Ruwe, Kolwezi, Dikurwe, etc. At or near Ruwe the Union Miniere contemplates the erection of reduction works as important as those of Lubumbashi. From Ruwe the line would, according to the present scheme, proceed westwards to join as quickly as possible the Congo-Zambesi divide, which will be followed up to its exit from the Belgian Congo at Kangombe (Angola). Mr. van Iseghem is not in favour of this route. He proposes that from Ruwe the line be built some 100 kilometres more northwards.

KINGHORN'S PATENT METALLIC VALVES
FOR
PUMPS of all Descriptions
ALL SIZES NOW IN STOCK.
SOLE SOUTH AFRICAN AGENTS:
GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."

SOUTH AMERICA
We offer a complete banking service in the following countries, special attention being given to the handling of collections.
HEAD OFFICE: MONTREAL, CANADA
ARGENTINE — Buenos Aires.
BRAZIL — Rio de Janeiro, Santos, Sao Paulo.
URUGUAY — Montevideo.
VENEZUELA — Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA — Barranquilla.
BR. GUIANA — Georgetown, Rose Hall, New Amsterdam.
Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES
555 Branches throughout CANADA & NEWFOUNDLAND
LONDON — Princes St., E.C.
PARIS — 28, Rue du Quatre-Septembre.
NEW YORK — 68, William St.
BARCELONA — Plaza de Cataluna 6.
THE ROYAL BANK OF CANADA
CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - $500,000,000

FAR EAST RAND ORE RESERVES.

Some Colossal Figures—Eight Mines Contain 35,177,515 Tons with a Value of about 77 Millions Sterling—Government Areas and New Modder Possess 19,856,000 Tons Between Them.

Publication of one or two annual reports and also of the report of the Inspector of Mining Leases contained in the *Government Gazette* of March 12th enables us to present some interesting statistics relating to the latest ore reserve position at a few of the larger properties of the Far East Rand. In the subjoined table are given the tonnage and value of the ore reserves as at 31st December, 1919, or at latest date of eight mines of the Far East Rand goldfield. For purposes of comparison, the figures for a year previously are also given. The mines in question are: Brakpan Mines, Geduld, Modder B., Modder Government Areas, Modder East, Modder Deep, Springs Mines, New Modderfontein.

An Interesting Table.

In the following schedule the ore reserve positions at these mines as at the end of last year and twelve months previously is set forth:

Mine.	1918. Tons.	1918. Value dwts.	1918. Inches.	1919. Tons.	1919. Value dwts.	1919. Inches.	Increase or Decrease in Tons.
Brakpan Mines	2,718,050	8·80	68·88	2,484,117	8·74	69·96	− 233,933
Geduld Proprietary ...	2,510,000	7·5	61	2,580,000	7·4	61	+ 70,000
Government Areas	9,445,000	8·0	78	11,001,700	8·6	77	+ 1,556,700
New Modder	9,000,000	8·6	—	8,854,300	8·5	—	− 145,700
Modder B.	3,378,000	9·2	—	3,215,100	9·0	—	− 163,000
Modder East	—	—	—	850,000	8	55	—
Modder Deep	3,450,000	8·8	78	3,775,000	9·1	77	+ 325,000
Springs Mines	2,367,636	9·26	61·25	2,417,298	8·74	62·92	+ 49,662

Over Thirty-five Million Tons.

The total pay tonnages of these seven producing and one non-producing mines of the Far East Rand amount to 35,177,515, with a gold content in the neighbourhood of seventy-seven millions sterling. It is interesting to speculate on the incidence of the gold premium on these tonnages. As we pointed out in our issue of three weeks ago, the payable ore reserves of Witwatersrand mines were estimated at ninety million tons at the end of 1918, which was approximately a decline of six million tons compared with the estimates of a year previously. The outstanding feature of the year's work on the Witwatersrand in regard to ore reserves during 1918 was that although development was " speeded up " on the Far East Rand the increase in working expenditure compelled the elimination of millions of tons of low-grade ore from the estimates of payable reserves. Since the outbreak of hostilities in Europe and up to the end of 1918, the costs of operation on the Rand increased by the equivalent of 1¼ dwts. per ton, and in consequence large areas formerly reckoned profitable were ruled below the pay limit, whilst at the same time there was a general increase in the value of " pay " ore on account of the rise in costs.

In December, 1918, working costs were 21s. 7d. per ton and by December, 1919, they had risen to 25s. 6d. This is a very substantial advance in the costs of operation and under normal circumstances there would have had to be a further large shrinkage in the payable reserves of the mines as at the end of last year due to the raising of the pay limit. The so-called gold " premium " has, however, luckily come to the rescue. But for this fortunate circumstance the payable ore reserves of the Main Reef series would have contracted to a figure which would have greatly impaired the credit and stability of the industry. For ore reserves are the stock-in-trade of the Rand and a diminution to, say, not more than fifty million tons would have been highly detrimental to the prosperity of the whole Union.

These remarks apply, of course, to the lower-grade mines of the Main Reef series rather than to the richer propositions of the Far East Rand, but it must be borne in mind that despite contraction in the tonnage of reserves at some mines the aggregate value of the gold contents of these reserves is much greater to-day than it was twelve months ago on account of the rise in the price of gold.

The World's Two Greatest Gold Mines.

It may be noted that the Modderfontein Government Areas with over eleven million tons of payable reserves blocked out easily outdistances its nearest rival, the New Modderfontein, in magnitude of payable tonnage. These two mines are the two most highly developed gold propositions in the world, and it is interesting to calculate that their combined pay tonnages total no less than 19,856,000 tons, which contain approximately forty-two million pounds' worth of gold at the present price of the product.

SALISBURY, RHODESIA.

WIGG & JENKINS,

MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.

Gold and Base Metal Properties

FOR SALE AND WANTED.

Correspondence invited.

P.O. Box 118 Telegrams: ' WIGG."

PERSONAL.

Mr. Reginald Bedford, of the firm of Messrs. Bedford & Sons, Ltd., the well-known Sheffield steelmakers, is on a brief visit to South Africa.

* * * *

Mr. T. E. Kanthack (Irrigation Director for the Union), whose 10 years' contract with the Government expires in September, will not renew it owing to ill-health.

* * * *

Col. Walter Karri-Davis, well-known to the mining fraternity of the Rand, has been visiting British Columbia, familiarising himself with present conditions, says the *Canadian Mining Journal*.

* * * *

Messrs. L. Charlston Goch and George J. Rowe have been appointed to the board of the South-West Diamonds, Ltd., and Messrs. A. C. Hughes and M. Solomon have resigned. Mr. L. Charlston Goch was appointed chairman of the board of directors. The new board is considering the presentation of a report to shareholders at as early a date as possible.

* * * *

Mr. R. S. G. Stokes, who left the Crown Mines eight years ago to join the International Nickel Company, U.S.A., has been re-visiting the Rand. During the War, Mr. Stokes held the rank of Colonel R.E., as Controller of Mines, First Army, and later as Chief Engineer, Allied Forces, North Russia. He is shortly proceeding to Kimberley to take up a mining appointment with De Beers Consolidated.

THE YEAR WITH THE GEDULD.

Increased Yield, Profit and Working Costs—Cementation Results Satisfactory—Augumented Ore Reserves.

In his report for 1919, Mr. P. M. Anderson, the consulting engineer to the Geduld, writes:

The working results for the year 1919 show only slight variations from those obtained in 1918, except that a premium was obtained on gold produced after 25th July. The tonnage milled during the year was 516,000, being an increase of 2,800 tons compared with the year 1918. The yield from the ore milled, taking gold at its normal value, was 30s. per ton, the working costs 20s. 7d. per ton and the working profit 9s. 5d. per ton, being increases of 10d., 7d. and 3d., compared with the preceding year. The total profit from gold, taken at its normal value, was £243,419, being an increase of £9,177 for the year. The addition of sundry revenue of £13,263, premium on gold of £77,757, and gold adjustment for 1918 of £903, brings the total profit to £335,342, or £90,657 more than last year. A year ago the burden of cost, directly due to conditions brought about by the War, was estimated at 3s. 11d. per ton milled. Since then there has been no reduction in the cost of mining supplies, while the cost of labour and charges for miners' phthisis have increased substantially. The cost of living allowance to Europeans was increased from £925 per month for the first ten months of the year to £3,741 per month for the last two months. The latter figure includes an estimated amount to cover the increase which was under discussion with the Unions and which it was agreed should come into force from 1st November. The cost of living allowance has now been superseded by an increase in substantive pay of £2 8s. per week per employee, which, together with increases in overtime rates and a number of minor concessions, brings the average earnings of European employees, excluding apprentices to a rate of £552 per annum, or a rise of 55 per cent. compared with 1914. Phthisis compensation charges were increased £1,000 per month on the coming into force of the new Miners' Phthisis Act on 1st August. A small advance has also been made in the rate of native wages. The native labour supply has been adequate throughout the year to meet requirements, as the mine enjoys great popularity with all classes of native labour. The death rate from sickness was 4·2 per thousand, and from accidents 1·9 per thousand. The quantity of water raised from the mine was 540 million gallons, or 35 million less than in the preceding year. The cementation of water-bearing fissures was continued throughout the year with satisfactory results. Preliminary work in connection with the sinking of No. 7 vertical shaft was started on 19th March. Delays in the erection of the plant were caused by difficulties in obtaining a sufficient number of bricklayers and by late deliveries of cement. Most of the plant was in commission by the end of the year. At that date the shaft had been sunk by means of portable gear, to a depth of 254 feet. Inclusive of 2,524 feet of incline shaft sinking, the total footage of development for the year was 18,444, being 1,101 feet more than in 1918. No. 2 incline shaft had almost reached the east boundary at the close of the year. A new haulage road, called the north-east haulage, has been started between No. 2 incline and the north boundary. This will connect with the main level near No. 2 shaft and extend to the north east corner of the property. It is intended to sink No. 2 vertical shaft, a short distance to the plane of the second level with which it will be connected by means of a cross-cut equipped with electric traction. The object in view is the quicker distribution of men and stores to the working places. The cross-cut from the second level is in hand and had advanced 430 feet by the close of the year. The intermediate incline was stopped after attaining a length of 6,345 fee as it is sufficiently deep for present requirements, and a new incline called the south-west haulage has been started from the bottom of the No. 3 incline to extend to the south-west corner of the property. The ore reserves, as measured and valued at 31st December, 1919, amounted to 2,580,000 tons, having an assay value of 7·4 dwts. over a stoping width of 61 inches. This is an increase of 70,000 tons of the same width, while the value is 0·1 dwt. less. The development account stands in the books at £189,962, equal to 1s. 5·6d. per ton of ore developed. 2s. 9d. per ton miled was charged to working costs for development redemption. The capital expenditure for the year amounted to £113,667, of which £74,781 was spent in connection with No. 7 shaft. Of the remainder, £37,970 was spent underground on shafts and equipment.

THE POSITION OF THE PRINCESS ESTATE.

A Disappointing Year Owing to Labour Shortage and Increasing Working Costs—Capital Expenditure to be Stopped.

In his annual report on the Princess Estate for 1919, Mr. P. M. Anderson, the consulting engineer, writes:

The working results of your Company during the year 1919 did not come up to expectations, owing to the shortage of native labour and the high cost of production. Prior to the influenza epidemic in September, 1918, the mine was employing 2,700 natives. In December, 1918, the number was only 2,050, but a temporary recovery was made till March, 1919, when there were 2,650 in employment. After that the general shortage of native labour on the Rand reacted on the mine and the number employed by the company steadily decreased till December, when the number had fallen to 2,130. During the latter half of the year the number of native labourers available for underground work varied between 25 per cent. and 30 per cent. below the estimated requirements of the mine. As the year 1918 was abnormal, due to alterations being made to No. 1 Shaft and to the influenza epidemic, the following comparison is made for the past three years:—Tons mined, 1917, 335,733; 1918, 285,384; 1919, 282,712. Per cent. sorted, 1917, 21·9; 1918, 22; 1919, 17·3. Tons milled, 1917, 261,600; 1918, 222,430; 1919, 233,700. Recovery value per ton, 1917, 25s. 7d.; 1918, 26s. 1d.; 1919, 25s. 9d. Working costs (including the actual cost of development, and not the figure of 2s. 6d. per ton milled which is charged for development in the monthly returns), 1917, 24s. 3d.; 1918, 29s.; 1919, 28s. 5d. Premium on gold, 1917, *nil*; 1918, *nil*; 1919, £30,866. Loss, after allowing for sundry revenue, 1917, *nil*; 1918, £28,715; 1919, *nil*. Profit, including sundry revenue and premium on gold, 1917, £21,214; 1918, *nil*; 1919, £5,420. Capital expenditure, 1917, £3,019; 1918, £38,753; 1919, £9,188. Compared with 1917 the reduction in tonnage mined, per cent. sorted and tonnage milled, and consequent reduction in gold output, is chiefly due to the shortage of native labour. The premium realised on gold produced after the 25th July was not sufficient to compensate for the reduced output, and in addition there was a further rise in working costs due to increased pay and privileges to employees. The ore reserves, as measured and valued at 31st December, were:—South reef, 116,000 tons, valued at 7·4 dwts. over 28 inches milling width; main reef, 205,000 tons, valued at 7·0 dwts. over 56 inches milling width; total, 321,000 tons, valued at 7·1 dwts. over 41 inches milling width. This tonnage shows a decrease of 59,000 tons, while the width is greater by 4 inches and the value less by 0·1 dwt. In addition there are 49,000 tons valued at 7·1 dwts. over a milling width of 28 inches which must be left to protect shafts. The development footage of 3,762 was 860 feet less than for the preceding year. The payable ore tributary to No. 2 shaft is nearing exhaustion, and the delays caused by water troubles and shortage of native labour account for the poor footage obtained in sinking the incline portion of No. 1 shaft. The development position is therefore unsatisfactory, and it would be difficult to recover the position. The continued high cost of mining supplies, the further concessions in pay and privileges recently made to European and native employees, in common with the rest of the mining industry, and the increased rate of exchange imposed by the banks, have altered the prospects of the mine to such an extent that the continuance of shaft sinking is not justified. The main increase in cost has been a rise in wages to European workmen. Inclusive of the last concessions, the average earning of European employees, excluding apprentices, is at the rate of £537 per annum, or 51 per cent. more than in 1914. The earning of profits is now only posible by stopping capital expenditure, curtailing development and maintenance charges and by the continuance of a high margin between the gold premium and the rate of exchange.

P.O. Box 3807.

ROCKWOOD PRESSED STEEL UNIONS

H. ALERS HANKEY - - - Sole Agent.

ANNUAL REVIEW OF THE NEW KLEINFONTEIN.

Mr. E. J. Way Reports on General Position and Prospects of the Mine.

In his annual report for 1919 on the New Kleinfontein, Mr. E. J. Way, the consulting engineer, writes:

The principal features with which I propose to deal are as follow:—(1) results of development, (2) results from reduction works, (3) general labour position, (4) general. (1) Results of Development: The annual re-estimation of the ore reserves shows that on the 1914 basis there were developed 2,312,000 tons of an average mining value of 5·53 dwts. over a stoping width of 58·20 inches. The following table has been prepared for the same reasons as were mentioned in my last report, viz., the difficulty of fixing the limit of pay value on account of the increasing cost of labour and stores. The table shows the amount of ore estimated to be available on various pay limits and the estimated recovery value, taking the product at its *standard value*, after making due allowance for sorting and for recovery losses.

Pay Limit.	Ore Reserves. Tons.	Average value. dwts.	Average Stoping width. Inches.	Estimated Recovery value per ton on Standard value of Gold. s.	d.
3·76 dwts.	2,312,000	5·53	58·20	27	0
4·01 dwts.	1,979,000	5·81	58·44	28	5
4·26 dwts.	1,825,000	5·95	58·80	29	2
4·51 dwts.	1,630,000	6·14	59·76	30	1
4·76 dwts.	1,453,000	6·33	60·24	31	0
5·01 dwts.	1,305,000	6·49	60·48	31	10
5·26 dwts.	1,087,000	6·75	60·24	33	1
5·51 dwts.	968,000	6·92	60·12	34	0

(2) Results from Reduction Works: The fluctuations in the supply of labour during the year, described in my remarks on the labour position, necessitated a reconsideration of the milling policy. After careful investigation of all the conditions, it was decided to close down the Western Reduction Plant at the end of the month of July, and concentrate all efforts on running the Eastern Reduction Plant at its full capacity. The Western Reduction Plant was accordingly closed down and a very thorough clean-up of the plant was made, and all ore is now being crushed and treated at the Eastern Plant. (3) General labour position: At the beginning of the year the labour position was very unsatisfactory owing to the after effects of the influenza epidemic. This period was followed by a sudden increase of supply of labour, but owing to the fact that a very large proportion of this labour was entirely new to the Mines, a proportionate increase in output was not secured. The increased strength was maintained for only three months, when there was an almost equally sudden decrease in the amount of labour offering. Since July the supply has been fairly steady, but not large. The native underground labour strength has averaged 77·66 per cent. of the complement for the year under review. The average strength of all the mines for the year was 68·17 per cent. of the underground complement. (4) General: The year under review has been marked by a considerable increase in the working costs. A large part of this increase is due to increased charges: War bonus, miners' phthisis compensation, cost of stores, etc., over which the management has no control, but it must also be admitted that a part of the increased cost is accounted for by the poor efficiency of the underground white worker who is now offering himself for employment, and to the fact that very many of the best men have been obliged to give up work owing to the operations of the Phthisis Act. The alteration of underground hours has not fulfilled expectations. The previous hours of 48 "at the face" were satisfactory, and meant no hardships to those so employed. It was pointed out by the Miners' Union that the alteration from this time to 48½ hours "bank to bank" would show no drop in efficiency; but it has been proved throughout the Rand that the decrease in production per shift worked is almost exactly proportionate to the decreased hours "at the face." At Kleinfontein it has meant that 11 months' production "at the face" are approximately equal to 12 months "bank to bank." As the promises of the Union with regard to efficiency have not been fulfilled; and as a further attempt is being made to shorten underground hours to 40 "bank to bank," I wish to point out that there would be a further drop in production per shift worked, which, as the hours decrease "at the face," will be out of all proportion to those decreased hours. The Miners' Union do not seem to understand that it is the native who breaks and handles the ore, and if the hours are reduced to 40 per week, losses in production will not even be proportional to the present rate of loss; but owing to the decreased hours which the native would be able to work under the regulations, would be increased from about 12 per cent. to 13 per cent. to between 30 per cent. to 33 per cent., added to which white and native wages will be higher per unit than they were on the "at the face" basis.

IMPROVED RESULTS FROM THE MODDER DEEP.

Increased Yield and Profits—Ore Reserves Higher in Quality and Quantity.

In his report for 1919, Mr. P. M. Anderson, consulting engineer to the Modder Deep, writes:

The working results obtained during the year 1919 show a further advance compared with those of preceding years. The tonnage milled was 507,200 tons, or 1,100 tons more than during 1918. The yield from ore milled, taking gold at its normal value, was 43s. 9d. per ton, the working costs 18s. 5d. per ton, and the working profit 25s. 4d. per ton, being increases of 2s. 10d., 1s. and 1s. 10d. compared with the year 1918. The total profit from gold, taken at its normal value, was £643,437, being an increase of £49,586 for the year. The addition of sundry revenue of £6,883, premium on gold produced after 25th July of £113,013, and gold adjustment for 1918 of £1,093, brings the gross profit for the year to £764,426, or £161,550 more than the preceding year's figure. The increase in working costs is due to increased rate of pay to employees and to increased charges for miners' phthisis. The increased rate of pay to European employees which recently came into force brings the average earnings per employee, excluding apprentices, to £522 per annum. As a result of legislation, the charges for miners' phthisis have been increased from £3,100 to £21,000 per annum as from 1st August. The supply of native labour has been sufficient to meet the requirements of the mine throughout the year, and the health conditions have been satisfactory. The death rate from sickness was 11·7 per thousand and from accidents 3·0 per thousand. The stock of ore on the surface dump at the end of the year was 182,600 tons of stope and development ore; 2,770 tons were drawn from the dump during the year. The footage of development done during the year was 7,134 feet, or 1,709 more than during 1918. The values disclosed were highly satisfactory. The developed ore reserves, as measured and valued at 31st December, 1919, amounted to 3,775,000 tons, having an assay value of 9·1 dwts. over an estimated stoping width of 77 inches. The tonnage is greater by 325,000 tons and the value shows an improvement of 0·3 dwt., while the width is 1 inch less, compared with the figures of a year ago. A system of endless rope haulages is being installed in the mine. On the main level west the haulage was put in commission during the year, and in connection therewith dip haulages will be installed in the No. 5 west raise and the No. 4 west winze. The haulage way on the main level east of the shaft is nearing completion, and is expected to be in operation during the coming year. No expenditure was charged to capital account. All expenditure, including buildings, as well as additions to and renewals of machinery and plant, was charged to working costs.

Milling Bismuth, Tin and Wolfram Ores.

The *Chemical, Engineering and Mining Review* (Melbourne) of January 5th, 1920, contains an abstract of a paper in the Proceedings of the Australian Institution of Mining and Metallurgy. The authors, Messrs. W. E. Hitchcock and J. R. Pound, describe milling practice at the S. and M. mine situated at Moina, 36 miles from Devonport, Tas. Bismuth, tin and wolfram are the metals recovered and the minerals (bismuthinite, wolframite, and cassiterite) containing these are easily detachable from the gangue, which is mainly quartz of a very friable nature. The country rock contains fine grains of pyrite and considerable magnetite. The problem is to liberate the valuable minerals with as little as possible of the impurities. Reduction does not enter largely into the matter, for practically all the valuable contents are liberated when the ore is reduced in rolls to ½ in. diameter. Two grades of concentrates are produced from all machines in the mill, the firsts containing 35 per cent. Sn, 35 per cent. WO_3 and 2·5 per cent. Bi, and the seconds 12 per cent. Sn, 10 per cent. WO_3, and 3·5 per cent. Bi, together with pyrite and magnetite. The two last are saved, not for their value, but because it is impossible to reject them without loss of the valuable metals.

RAND WATER BOARD.

Proposed Local Issue of Stock in South Africa.

We understand that the Rand Water Board is about to issue in South Africa further Stock to the amount of, approximately, £2,000,000, to provide the funds necessary to complete the Board's water scheme for obtaining an additional supply of ten million gallons a day from the Vaal River, with storage accommodation for double that quantity. The Stock will be issued under the provisions of Ordinance No. 48 of 1904 (Transvaal) and Act No. 18 of 1914 (South Africa). The Board's prospectus has not yet been issued, but we are informed that the terms of issue are likely to be £93 per cent., bearing interest at 5½ per cent. per annum. The yield to the investors on these terms is equal to slightly over 6 per cent. per annum, allowing for the redemption of the Stock, at par, in 30 years from the date of issue.

Terms of Repayment.

The present issue will rank *pari passu* with the Board's current loan of £3,400,000 (4 per cent.) Stock, which will be repaid in 1935 out of the Redemption Fund which the Board is accumulating from year to year in terms of its Statutes, and which, as stated below, now amounts to considerably over one million pounds sterling. The Stock will be inscribed in books to be kept by the Board at its Headquarter offices in Johannesburg, and will be transferable by Stock-holders personally, by their attorneys, or by deed. A cumulative sinking fund will be provided, in terms of the Board's Ordinance No. 48 of 1904, to redeem the Stock outstanding at maturity. The principal amount will be repayable by the Board in South Africa, 30 years from the date of issue. Application will be made in due course for the listing of this Stock issue on the principal Stock Exchanges in the Union of South Africa. The Board's Stock is secured on the ordinary revenues of the Board, the reserve fund, the whole of the property of the Board, and on all rates which may be levied by the Board or by the Court under Ordinance No. 48 of 1904 on the mining and municipal values of the whole of the Witwatersrand area. It will thus be seen that the security is ample.

Financial Position.

The present financial position of the Board is a particularly strong one. On the 31st March, 1920, its accumulative sinking fund for the redemption of the existing 1905 Stock was £1,183,505, in addition to which the Reserve Fund contained £68,000, and the renewal of machinery and plant fund over £116,000. During the 1914 session of the Union Parliament, the Rand Water Board Supplementary (Private) Act was passed, conferring upon the Board the right to impound in the Vaal River a quantity of water equal to 20 million gallons a day, with the sole and exclusive right to take, abstract, and use all such water, and, subject to existing rights, to have control over the whole area covered by the reservoir.

The Vaal River Barrage.

The Board's impounding works on the Vaal River, situated about 22 miles below Vereeniging, will consist of a barrage of 36 gates, each 25 feet deep and 30 feet wide. The reservoir will impound 13,633,000,000 gallons of water, and will extend for a distance of about 39 miles above the barrage works, the point of abstraction being at Vereeniging. The foundations for the barrage, which were commenced in July, 1916, have been laid, and the piers are now well advanced, all of them being erected to a height of 15 feet, and some of them to the full height required, namely, 35 feet. In December last a contract for the barrage gates was placed on favourable terms with Messrs. Blane & Co., Ltd., the local agents of Messrs. Glenfield & Kennedy, Ltd., and delivery is expected early next year. Good progress has also been made with the other works in connection with the scheme.

Some Additional Facts.

The constitution of the Board, as well as its powers and general functions, are modelled on the lines of the Metropolitan Water Board (London). Its membership consists of an equal number of representatives of the Witwatersrand Municipalities and of the Transvaal Chamber of Mines; a representative of the South African Railway Administration; and a chairman appointed and removable by the Union Government. Under the Board's 1914 Act it was provided that the whole jurisdiction of the Board's affairs should be placed under the Union Parliament, and in future, therefore, that Parliament only can legislate in respect of the Board, so as to alter or amend in any way its present powers, functions or operations. In view of the generous terms of issue offered by the Board, and of the strong security for the payment of both interest and principal, the Board should have no difficulty in obtaining the capital funds which it now requires to complete its Vaal River Scheme.

TWO WINNERS

DANIEL'S "SPECIAL P.P.P." PACKING

in all sizes from ¼ in. to 1½ in.

"RAINBOW" STEAM SHEET PACKING

1/32 in., 1/16 in., ⅛ in., ¼ in. thick.

CHEAPEST IN THE END.

SOLE AGENTS:

National Trading Co.,

53/56, CULLINAN BUILDINGS,
JOHANNESBURG.

Box 2762. Telegrams: "GLORIA." 'Phones 1205 & 1250

THE OUTLOOK FOR THE MODDER B.

All-round Increase in Costs—Better Supply of Native Labour—An Additional South West Shaft—More Favourable Prospects.

The following figures afford a comparison of the leading features of the last two years' operations at the Modderfontein B.:—Tons milled, 1918 605,500, 1919 649,500; yield per ton milled, 1918 9·951 dwts., 1919 10·344 dwts.; value of yield per ton milled on standard basis, 1918 41s. 5d., 1919 43s. 10d.; working costs per ton milled, 1918 19s. 8d., 1919 22s. 5d.; profit per ton milled on standard basis, 1918 21s. 9d., 1919 21s. 5d.; total working profit on standard basis, 1918 £658,587, 1919 £695,564; value of premium, 1918 nil, 1919 £151,093; total working profit, 1918 £658,587, 1919 £846,657; payable ore reserve, 1918 3,378,000 tons, 1919 3,215,100 tons; value per ton, 1918 9·2 dwts., 1919 9·0 dwts. In his annual report the consulting engineer writes:

Based on standard gold prices, the profit for the year was £695,564—an improvement of £36,977, due to the increase in output of 44,000 tons. The yield at standard price of gold was 2s. 5d. per ton higher than in 1918; the working costs were also 2s. 9d. per ton higher, thus showing a decrease in the profit of 4d. per ton milled when calculating gold at the standard price. The premium on the gold sold in the last five months of the year produced £151,093, thus making the working profit £846,657 for the year. The total working expenditure for the year was £728,284—an increase of £132,818 compared with 1918. Of this increase, white wages accounted for £37,632, native wages for £21,554, stores and materials £50,764, other costs £22,485. Head office expenses were practically unchanged. The above figures are typical of the general conditions prevailing in 1919. Owing to the better supply of native labour it was possible to carry on development work on a more suitable scale. Of the total footage on reef, viz., 12,800 feet, 1,450 feet were exposed on the eastern side of the mine. The area between the 2nd and 3rd levels was unusually faulted and on the whole disclosed poor grade reef. There was consequently only a small addition to the ore reserve in this section of the mine. In the central section only a small amount of work was done, pending the installation of pumping plant on the 4th level. The winze (7/5 on the plan) intersected a heavy feeder of water, which was, however, sealed by cementation. The average of the 420 feet sampled during the year was 8 inches, assaying 37.5 dwts. In the south-east corner rapid progress was made with the heading from the Geduld Mine, which was advanced 1,229 feet. The 915 feet sampled and assayed averaged 38 inches of reef, assaying 17.2 dwts. The remainder of the distance was in faulted ground, but the work will be continued, with the co-operation of the Geduld Company, in order to open up this area of the mine. The greater part of the developed footage for the year was carried out in the western area, and was chiefly for the purpose of splitting up the large blocks between the 3rd and 4th levels; the remaining footage in this area was in new ground, where reef disclosures were uniformly good. The total tonnage of payable ore developed during the year is estimated at 575,000 tons, valued at 9.3 dwts. The new south-eastern vertical shaft, after construction work had been completed in August, was sunk 474 feet. The remaining 1,300 feet of sinking should be completed about the middle of the year. In view of the large tonnages that will have to be dealt with from the deeper western side of the mine, and of the great distance of this section both from the old central and the new south-eastern shafts, it has been decided with your approval to sink an additional south-west shaft at the position shown on the plan accompanying this report. Its diameter will be 18 feet, and its depth about 1,700 feet. This shaft will be connected to the reduction plant by a surface haulage. Apart from its importance in handling ore, it will be of great value for ventilation, and will enable men and material to be brought to the working faces in a short time—a factor of great economic importance. Some of the sinking equipment has been procured from spare plant on the mine, and the rest has been secured locally. Sinking and construction have already been commenced, and will be pushed ahead as rapidly as possible. When these two shafts are equipped, which should be towards the middle of 1921, the position of the mine will be greatly improved, both from the aspect of simplifying development and for economical and expeditious handling of large tonnages. The ore reserves on remeasurement and revaluation at December 31st, 1919, totalled 3,215,100 tons of an average value of 9.0 dwts, over 63 inches. Compared with the preceding year the reserve shows a decrease of 162,000 tons, the grade a decrease of .2 dwts., and the stoping width an increase of one inch. The decrease in tonnage is not important, and the more favourable prospects in the south-east section of the mine, as manifested by the Geduld drive, altogether outweigh any adverse impression that this circumstance might create. Capital expenditure for the year amounted to £69,181, of which £51,620 was in connection with the equipment and sinking of the south-eastern shaft. Several improvements were made in the reduction plant, in the underground pumping plant, and in further additions to the general surface arrangements. The main commitments during the current year are for the completion of sinking of the south-eastern shaft, the sinking and equipment of the new south-western shaft, and a large 200-drill air compressor. This has been obtained from the Rand Mines Power Supply Company, Ltd., and the cost of its transport and re-erection at the Modderfontein B will be gradually refunded to that company under its agreement. This powerful unit will be in commission very shortly, and will place the mine in a very strong position as regards its compressed air supply. The management, staff and employees have done excellent work during the year under review.

In his annual report, the manager, Mr. C. L. Butlin, writes, *inter alia:*

The native labour supply being sufficient, development operations were increased and gave a total footage of 20,004 feet, or about double that accomplished during 1918. The reef disclosures, although again proving high grade in the south-west section, have been disappointing in the north-east area, where during the year only small payable zones have been located. In view of the unsatisfactory reef disclosures in this latter area, the subsidiary development programme for the south-west section was accelerated; this work has not only confirmed the previous reef values, but is placing the section in a strong position to supply a maximum tonnage. The raise from the Geduld Proprietary Mines, Ltd., into the south-east corner of this property, after proving 915 feet of reef of an average value of 10.2 dwts. over a stoping width of 66 inches, entered into broken country, and to date no further reef exposures have been made. The estimated payable reserve at 3,214,100 tons and 9.0 dwts., shows a decrease of 162,900 tons and 0.2 of a dwt. in value on the 1918 estimate. At the close of the year the south-east shaft had reached a depth of 474 feet, and sinking operations are now in steady progress. Recently the sinking of a second deep-level shaft, situated in the south-west portion of the property, has been authorised; preliminary work is in hand. The 5th level west, which will be the first point this shaft will connect with by means of a crosscut, is now being extended from the present workings. Owing to the difficulties in obtaining delivery, the order for the 65 drill air compressor was cancelled and a 200 drill unit is being taken over from the Victoria Falls Power Co., Ltd. The capital expenditure for this compressor is estimated at £20,000, and will be amortised by the Rand Mines Power Supply Co., Ltd., under the terms of their agreement. In the reduction works a new slime depositing site is in commission and is of sufficient dimensions to last the life of the mine; a new lay-out has been installed to handle waste rock from the sorting belt. A blast furnace has been built, and all by-products are now being handled on the mine. The accommodation for both married and single employees was again increased, and at present another 32 rooms for single men are being built. With reorganisation and additions the mine hospital is being converted into a joint native hospital for this company, New Modderfontein, Ltd., and Modderfontein East, Ltd.

MONTROSE DIAMOND MINING.

The company's engineers (Messrs. J. M. Calderwood and A. L. Chambers) have now submitted their detailed report on the company's property in South Africa. In order to obtain precise and independent information as to the previous production of diamonds on the property, inquiries were made at the government's engineering department at Pretoria where the official records were examined. The information gathered from this source showed that during the various operations which were intermittently carried on up to the year 1913, 24,185·68 carats were obtained. Further investigation elicited the interesting information that there are several other areas on the property equally as promising as those already exploited, which as yet have been untouched. The theory that the diamondiferous alluvium has been distributed over the surface throughout the district from the Premier pipe is not accepted by the engineers, and the conclusion arrived at by them is that a far larger source of kimberlite exists than those already located and partially tested. In close proximity to the washing plant there are on the surface approximately 60,000 loads of cylinder lumps and tailings which could be quickly and advantageously treated. There are also about 5,000 loads of blue ground more or less weathered, and a deposit of alluvium, about 100 ft. wide, also near the washing plant. The treatment of the above material should yield a very satisfactory profit. The engineers give details of the further work necessary in improving and extending the existing plant, and instructions have been given for this work to be put in hand forthwith. They also elaborate their scheme of mining operations, which will consist of—(1) Unwatering the existing mines Nos. 1 and 3, sectioning the diamond pipes, retimbering where required, and thoroughly testing the yellow and blue ground obtained from the shafts and drives, so that development may be proceeded with as may be justified by the results obtained; (2) prospecting the hitherto unproved portions of the farm where diamondiferous indications have been located. During the progress of this work the washing plant will be brought up to date and the cylinder lumps, tailings, blue ground, and alluvium will be treated, from which it is anticipated that profits will be made from the start. A cablegram has been received from the company's Pretoria agents, in reply to one from the board to the effect that the funds provided are ample, that a manager has been appointed, and that satisfactory arrangements are complete to start operations immediately.

THE PROSPECTS OF THE ROSE DEEP.

The results of the year's work at the Rose Deep in 1919, as compared with those of the preceding two years, were as follow:—Tons milled, 1917 685,900, 1918 616,900, 1919 604,900; working costs per ton, 1917 16s. 11d., 1918 18s. 6d., 1919 19s. 2d.; revenue per ton at standard price of gold, 1917 21s. 5d., 1918 23s. 0d., 1919 23s. 4d.; profit per ton at standard price of gold, 1917 7s. 6d., 1918 4s. 6d., 1919 4s. 2d.; profit at standard price of gold, 1917 £258,912, 1918 £139,813, 1919 £126,834; revenue from premium on gold, 1917 nil, 1918 nil, 1919 £71,315; total profit, 1917 £258,912, 1918 £139,813, 1919 £198,149; development footage, 1917 7,190, 1918 5,112, 1919 5,214; ore reserve tonnage, 1917 3,219,700, 1918 2,909,520, 1919 3,031,280; average value of ore reserve per ton, 1917 5·4 dwts., 1918 5·3 dwts., 1919 5·2 dwts.; coloured labour strength (average), 1917 3,803, 1918 3,405, 1919 3,262. In his annual report the consulting engineer, Mr. E. H. Clifford, writes:

The results, as a whole, do not differ materially from those obtained in the previous year, except, of course, that the gold premium has brought about a large addition to the year's profit. The tonnage milled was a long way short of the capacity of the treatment plants, on account of the inadequate native labour supply, which was even worse than in 1918. Operating costs were greater by 8d. per ton, gecause of the general increase in the price of stores and white labour. Towards the close of the year mining was resumed in what is known as the No. 5 Section. This is an isolated area in the north-western corner of the property, abandoned many years ago on account of poor values. It is probable, however, that we shall be able to obtain a fair quantity of low-grade but payable ore from this section. The ore reserves at 31st December, 1919, were as follows:—Main Reef, 1,162,990 tons, value 5.4 dwts. per ton; Main Reef Leader, 88,350, value 5.3 dwts.; Main Reef Leader and Bastard, 708,890 tons, value 5.0 dwts.; South Reef and Main Reef Leader, 245,920 tons, value 5.0 dwts.; South Reef, 825,130 tons, value 5.2 dwts.; total, 3,031,280 tons, value 5.2 dwts. There is an increase in tonnage, due chiefly to the effect of the gold premium in reducing the pay limit, thereby rendering profitable an additional quantity of low-grade ore. In regard to the prospects for the current year, it is almost certain that operating costs will increase, and there is a probability of a small decline in the average yield per ton. Apart from the gold premium, therefore, the present margin of profit, which is by no means large, would be reduced to a narrow limit. On the other hand, the gold premium will make a material difference to this result, particularly if it remains at its present high figure of about 40 per cent.; an improvement in the native labour supply would also help the position.

THE YEAR WITH RHODESIAN MINES.

Chamber's Report for 1919—Details of Mineral Output—A Value of Over 3½ Millions Exclusive of the Gold Premium.

The grand total value of the mineral output of Southern Rhodesia for last year was £3,519,375, as compared with £3,456,320 for 1918—an increase of £63,055. The above figures do not, however, include the gold premium. In the annual report of the Executive Committee of the Rhodesia Chamber of Mines, presented at the annual meeting held on March 25th, it is stated:

The yield of gold from Southern Rhodesia for the year 1919 amounted to 593,222·39 fine ounces, valued at £2,499,498. This shows a decrease of 38,135·50 fine ounces in weight, and £152,752 in value as compared with the year 1918. The value for 1919 does not include the premiums on gold sales which commenced to be realised from July 25 last. The following amounts and values of other metals and minerals, coal and diamonds were also declared, viz.:—Silver, 172,000·15 ounces, £34,099; copper, 3,012·03 tons, £207,470; coal, 510,040 tons, £189,138; chrome ore, 35,282·48 tons, £142,541; asbestos, 9,739·37 tons, £425,240; ironstone, 2,500 tons, £312; tungsten, 20 tons 799 lbs., £5,103; arsenic, 242·35 tons, £10,486; tin, 3·95 tons, £1,060; mica, 6 tons 246 lbs., £1,345; diamonds, 385·25 carats, £3,083; total value, £1,019,877. The grand total value of the mineral production for the year 1919 was £3,519,375 as compared with £3,456,320 for the year 1918, an increase of £63,055.

NATIVE LABOUR.

The report continues, *inter alia*: The returns show that the supply of native labour during 1919 was somewhat less than in the preceding year. The average total number employed at the end of each month was 30,678 as compared with 32,193 in 1918. The average number employed on producing mines was 20,458 as against 23 649 in 1918; on non-producing mines 3,453 against 2,806; and on coal and other mines 6,766 against 5,737. The deaths from disease on mines amongst native labourers during 1919 was 507, compared with 3 629 in the preceding year, and from accidents 90 against 88. The high death-rate for 1918 was due to the influenza epidemic. The Rhodesian Native Labour Bureau during 1919 supplied to employers 10,334 natives from the following sources.—Barotseland, 2,567; Batoka-Mushukullumbwe-Kafue, 352; Luangwa-Ndola-Serenffie districts, 118; Luapula-Awemba districts, 902; Angoni-Nyasaland circle 5,460; Portuguese East Africa, 913; Bechuanaland Protectorate, 22 Of the total labour distributed during 1919 the mines received 4,379; farms, 4,282; general employers, 1,144; and employers in Northern Rhodesia, 529. Of the 4,379 natives supplied to mining members, 1,329 were delivered to small workers. Since its inception in 1906 the Bureau has recruited and distributed 165,259 native labourers, of whom 67·82 per cent. have been allocated to mines and general employers and 32·18 per cent. to farms. The average period of service in 1907 of Bureau labourers was 5·7 tickets. At the present time all natives are contracted for 12 months' service.

DETERMINATION SPECIMENS.

Opon representations being made by the Chamber to the Administration of the importance of the continuance of the detetmination of geological specimens, which work had been interrupted in connection with the removal of the Resident Mining Engineer's Office from Bulawayo to Salisbury, the Government agreed to arrange for this work to be done by the Geological Survey Department, but pointed out that owing to the officials of that department being engaged on field work during the dry season, it might not always be possible to carry out determinations at that time of the year.

ROYALTY ON INCREASED VALUE.

Having regard to the increased working costs which the mining industry has been burdened with during the past five years, the Chamber considered that when a free market in gold was established as from 25th July last, it was fair to ask the B.S.A. Company to waive royalty on the increased values realised, and supported by the Salisbury and Gatooma Chambers in the matter, it approached the Administration with this object in view. It is regretted, however, that the directors of the company have intimated that they fail to see any justification for the remission of royalty asked for and are not prepared to accede to the proposal.

New Municipal Generating Plant.

At a meeting of the Johannesburg Town Council held on the 9th October, 1919, an amount of £36,502 was allocated for capital expenditure in connection with the two 3,000 k.w. turbo-alternators and all accessories, which are now on order, and it was recommended that this amount should be included in the sum of £1,848,807 which the Council should apply to the Administrator for authority to borrow to meet the capital expenditure for a period of three years in respect of works and undertakings set out in the schedule of capital requirements. The amount of £36,502 is made up as follows: Extra amount involved in contract for new turbine plant, £31,502; additional amount required to com-complete the new pump-house, cooling towers and circulating water-piping system, £5,000. As the contracts for the two 3,000 k.w. Parsons' turbo-alternators have now been signed, the Council is committed to the amount of £31,502. It is necessary that the new circulating water pump-house, pipe-work, etc., be proceeded with at once, as until this is completed neither of the new turbines can be put into use. As above stated, it is estimated that a sum of £5,000 is required to complete this pump-house and new cooling towers and circulating water-piping system. A sum of £5,000 has therefore been voted for completing the new cooling towers, pump-house and circulating water-piping system so that this work may be proceeded with at once.

WHAT THE SOUTH AFRICAN MINES BUY.

Mines Department Return of Stores Consumed by the Mines of the Union During the Year 1919.

Classification.	South African (including Rhodesian) Products. Value.	Imported Value.
Bags	£2,801	£17,945
Belting (including laces and fasteners)	539	187,175
Boiler Fluid	1,723	1,310
Bricks	41,413	296
Brushware	6.048	11,157
Candles	461,636	24
Carbide	886	122,919
Castings—		
(a) Brass	46,288	3,339
(b) Iron	133,173	12,051
Cement—		
(a) Casks	—	94
(b) Bags	86,214	—
Charcoal	6,983	24
Chemicals & Assay & Smelting Requisites	84,862	60,065
Cloth (brattice and filter) and Matting	1,004	29,307
Coal-cutting Machines	—	17,091
Coal-Cutting Machine Spares	562	17,442
Coal—		
(a) Smithy	27,812	—
(b) Steam	1,140,269	—
(c) Other	66,898	1,840
(d) Duff and Dross	112,948	—
Coke	55,848	41
Compressed Air (purchased)	331,970	—
Cyanide	—	360,000
Disinfectants and Hospital Requisites	11,101	34,266
Electrical Machinery (as detailed in An. B.)	1,991	255,487
Electrical Machinery—Spares	6.430	86,176
Electric Power and Light (purchased)	1,380,760	—
Explosives—		
(a) Blasting Gelatine	133,539	—
(b) Gelignite and Gelatine Dynamite	1,171,913	—
(c) Dynamite and Ligdyn	181,860	—
(d) Other Explosives	60,112	—
(e) Detonators	—	86.507
(f) Electric Detonators (or Elect. Fuses)	—	14,439
(g) Safety Fuse	—	257,092
(h) Lighting Torches (Tyisa Sticks)	16,126	19
Fencing and Wire Netting	588	4,465
Fodder for Stables—		
Bran, Chaff, Mealies, Forage, etc.	75.628	—
Foods, etc. (supplied free to Col. labourers)—		
(a) Beans	42.024	6,735
(b) Dholl	—	2,840
(c) Rice	139	45,094
(d) Meal (Mealie, Kaffir Corn, etc.)	612,986	—
(e) Malt and Cereals for Beer	44,765	125
(f) Meat	637,585	—
(g) Fish	3,817	—
(h) Salt	4,175	—
(i) Groceries, Coffee, Sugar. Oil, Ghee, Molasses, etc.	50,890	10,472
(j) Sundry Food, including Bread	230.154	8,477
(k) Vegetables	67,948	—
(l) Medicines, etc.	8,139	30,209
(m) Clothing (excluding issues on re-payment)	4,003	6.781
Foundry Requisites	2.646	1.329
Hand Tools (Picks. Shovels, Hammers, etc.)	10.669	159.801
Hose Fittings	14,120	20,158
Hosing (Steam, Suction, Rock-drill, etc.)	1.497	89,187
Iron—		
(a) Bar and Angle	43,378	55.927
(b) Galvanized	—	33,068
(c) Sheet	—	1.484
(d) Pig	546	4,345
Ironmongery—		
(a) Bolts, Nuts, Washers, and Rivets	24.395	93.838
(b) Screws and Nails	494	39.309
(c) Locks, Hinges, Staples, Chains, etc.	524	16.661
(d) Other	1.433	10.833
Lamps and Spares	1,862	24,289
Lead—		
(a) Pig	1.921	1,101
(b) Sheet	58	492
Lime—		
(a) White	121.368	—
(b) Blue	6.969	—
Lubricants—		
(a) Oils	—	196.847
(b) Grease and Tallows	50.319	92.359
Machinery and Machine Tools (as detailed in Annexure B.)	14.702	341 627
Machinery Spares, other electrical.	33,598	263,675
Mercury	—	48,560
Metals (Anti-friction)	8,951	22,236
Motor-cars and Accessories	585	20,608
Oils, other than lubricating—		
(a) Transformer	—	2,843
(b) Other	295	9,680
Oilskin Suits and Gumboots	1,002	34,536
Packing	11,604	55,556
Paint, Tar, Driers, etc.	3,103	39,773
Paraffin	—	29,440
Petrol	—	35,805
Pipes and Pipe Fittings	7,501	456,537
Rails, Crossings, Sleepers, etc.	133,789	212,994
Rock-drills	41	60,610
Rock-drill Spares	32,820	301,400
Ropes—		
(a) Wire	—	282,897
(b) Vegetable Fibre	6,384	9,400
Screening	3,307	29,741
Shoes and Dies	42,470	163,489
Skips, Cages, Kibbles, and Spares	7,701	18,241
Soap	13,830	667
Soda	2,502	771
Stationery and Printing	70,325	26,975
Steel—		
(a) Bar, Tool, Cast, etc.	5,037	40,466
(b) Sheet	816	161,426
(c) Hand-drill	10	53,410
(d) Rock-drill	437	328,316
(e) Other	10,833	17,091
Timber—		
(a) Building Material (Ceilings, Floorings, Doors. etc.)	2,943	38,632
(b) Oregon, Pitch Pine, etc.	47,821	313,683
(c) Mining Poles and Lagging	535,659	—
(d) Deals	24,744	87,745
(e) Other	67,773	12,918
Tub Mill Requisites—		
(a) Pebbles and Flints	264	1,459
(b) Liners	51,958	15,763
(c) Other Requisites	4,035	8,575
Trucks and Spares	15.685	117,792
Waste	—	17,595
Water (purchased)	203,543	—
Wood Fuel	17,994	—
Zinc and Zinc Discs	—	238,801
Sundry Articles not specified above	158,187	217.234
Total value	£9,182,998	£6.661,319

The following table shows the value of stores consumed by mines in the Union of South Africa in the year 1919:—

	Gold mining industry.	Diamond mines.	Coal mines.	Base mineral mines.	Total.
Transvaal	13,207,588	155,670	603,143	253,115	14,219,516
Cape	12	637,982	322	79,365	717.681
Orange F. State	...	264,398	88,572	...	352.970
Natal	849	...	609 533	727	611,109
Union of S.A.	13,208 449	1,058,050	1,301,570	333,207	15,901,276
Year 1918	12,983,470	747,142	1,083,905	362,385	15,267,870
Year 1917	12 704,839	688,801	996,242	453 398	14 923,265
Year 1916	12,390,502	360,485	798,611	448,037	13,995,258
Year 1915	10,935 383	139,521	617,819	343,150	12,082,371
Year 1914	10 277 087	969,325	643,158	291,879	12,224,535
Year 1913	10,633,152	1,645,219	643,256	395 504	13 362 905
Year 1912	10,311,940	1,466,151	523,025	307,135	12,660,047
Year 1911	11,714,755	1,450,127	544,782	305,830	14,071,108

Box 3807. **Tel. 5892.**

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent.

The following is a detailed statement of "machinery and machine tools" and "electrical machinery" for the year 1919 purchased by the mines of the Union :—

MACHINERY AND MACHINE TOOLS.

Water Purifiers	£555
Boiler plant, other than that of locomotives, traction engines, or steam wagons	48,369
Headgear	12,897
Steam engines—	
(*a*) For winding	23,532
(*b*) For pumping, including pumps if directly driven	922
(*c*) For compressors, including compressors	25,357
(*d*) For generating electricity	223
(*e*) For other purposes	4,201
Pumps—	
(*a*) Air-driven	9,371
(*b*) Driven indirectly by steam	7,835
(*c*) Driven indirectly by electric motors	26,619
(*d*) Driven indirectly by gas or oil engine	7,221
Steam locomotives	309
Traction engines	
Steam lorries	
Motor wagons—	
(*a*) Electric	
(*b*) Oil	320
Gas or oil engines	568
Mechanical lifts and elevators other than belt conveyors and elevators	1,591
Belt conveyors and elevators	2,503
Other mechanical haulage	16,036
Reduction plant, excluding engines and consumable stores, such as shoes and dies, screenings, etc.	17,000
Washing plant	11,361
Treatment plant, including furnaces	1,965
Workshops plant, excluding engines and motors	23,768
Mine ventilation plant, excluding engines, compressors, and motors	6,950
Diamond drills (property of company)	5,084
Miscellaneous machinery not particularised above	101,773
Total value (shown under the heading "Machinery and Machine Tools" (Stores consumed)	£356,329

ELECTRICAL MACHINERY, INCLUDING FITTINGS FOR POWER AND LIGHTING.

Electric generators and engines driving same if directly driven	3,479
Electric hoists, including motors	31,639
Electric locomotives	13,440
Electric motors driving pumps, including pumps if directly driven	27,582
Electric motors not included above	19,285
Power lines, transformers, etc.	88,392
Electric bells, telephones, and other fixtures	36,529
Miscellaneous machinery not particularized above	37,132
Total value (shown under the heading "Electrical Machinery" (Stores consumed)	£257,478

Emeralds.

In view of the finds of emeralds in the Postmasburg district, it is worth while noting that even if the emeralds are not valuable as gems they may be valuable in regard to by-product. Emerald is the green variety of beryl, and chemical research in connection with the beryls of New South Wales indicates some interesting possibilities of commercial utilisation. Research has established the fact that beryl contains an extremely valuable metal, glucinum, of which it is said: Glucinum, otherwise known as berylium, has properties which will make it extremely useful in the manufacture of special electrical and scientific apparatus; its salts have useful pharmaceutical properties; its alloys, particularly with copper, have important qualities, and their extensive use is only a matter of lower cost. The synthetic preparation of pure precious stones from glucinum has also been accomplished. Dr. J. W. Richards, in a paper read before the American Institute of Chemical Engineers, said: "Berylium (glucinum) is a metal which will well repay extended metallurgical research and minute physical and chemical study of its many unique properties." Would it not be worth while to test the economic possibilities of our South African emerald occurrences?

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union; Five Letter Edition.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

The Drilling of Deep Boreholes.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—In your issue of March 27th, there is an article on the question of deep boreholes, and the opinion therein expressed by Mr. Hugh F. Marriott, "that it would not be possible to carry a borehole down much deeper than the one recently sunk in Virginia (7,579 feet), and that probably this depth could not have been reached by any other method than cable drilling owing to the deflection of the rods, and that a core drill is thus strictly limited in vertical range, and may be dismissed from consideration for any borehole greatly exceeding one mile in depth," is apt to be very misleading, and I take strong exception thereto. I maintain that the straightness of any hole put down depends for its accuracy on the manner in which the drill is erected, and the first portions of the casing put down and socketed, and the knowledge and experience of the drillman in the working of his drill in the various classes of formation and angles of dip. Of course, if the rods are forced down by the hydraulic instead of being carried by it, and the bit or crown is dull, then there is bound to be deflection, and it will depend upon the angle of dip, and hardness of formation as to what direction that deflection will take; but if the bit or crown is kept sharp and not run unduly long, and is permitted to cut its way down without being forced, it is possible to bore very much deeper than has so far been done. Given a machine properly designed for the work, I would guarantee to put down a hole 10,000 feet or more, but to suggest that rods may unintentionally reappear at the surface shows lack of practical knowledge. On a hole recently put down on Eendracht, when at a depth of 2,500 feet, my drill was running so light that it was possible for me to stop it by grasping the rods with one hand. This in itself proves that the hole was accurately vertical, as if same had been deflected in any direction it would have been impossible for to stop it with my hand, owing to the extra power required to overcome the friction of the rods against the sides of the hole. It is advisable to bear in mind that in the past deep boreholes have always been contracted for at so much per foot, and naturally footage was the end in view, not whether the hole should be kept vertical or straight. I have had over twenty years' practical experience of drilling in various parts of the world and so am in a position to make these statements with authority.—Yours, etc.,

G. E. CHAPMAN.

Johannesburg,
March 29th, 1920.

Jackhammer Rigs.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—I was indeed pleased to read Mr. Ingle's letter in your issue of the 20th inst. As one of the many inventors of Jackhammer rigs, I have learnt the difficulties which beset the path of the junior official who would have an idea tried. I am quite certain that many excellent ideas are allowed to pass into oblivion for the want of an authoritative test. The Chamber of Mines' representative has seen my rig at work, and an excellent report has been written by him. This has been circulated amongst the mine managers of the Rand. It finishes by saying that the rig is worthy of further trial. The rig was in use for some time stoping and was a great success, one of the most satisfactory features being its popularity with the machine boys. Unfortunately the Jackhammer was discarded owing to its high cost of maintenance, and so all hope of further trial on this property vanished. I have made various attempts to have the rig tried elsewhere, but so far have not been successful, although it is twelve months since the rig was first made. Without an authoritative test it is quite hopeless to talk or write about a new idea. Figures can be obtained and so manipulated that any drill or rig can be proved better than any other. Twenty of my rigs have been made, but are still lying in the shops awaiting trial.—Yours, etc.,

WILLIAM ALLEN.

P.O. Box 50, Nigel,
29th March, 1920.

Sir Bouchier Wrey, Bart., has been re-elected President of the Rhodesia Chamber of Mines for the fifth year in succession.

* * * *

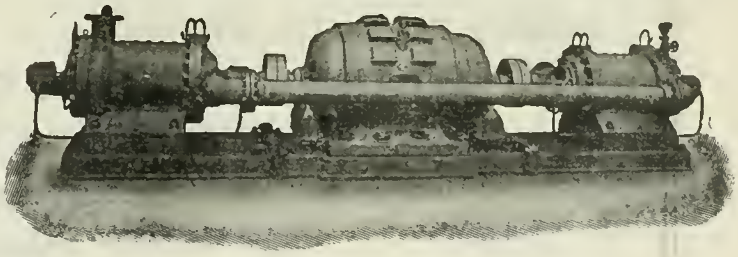
The list of certificates issued by the Mines Department for the period ended 31st March, 1920, is as follows:—Mine Overseers' Certificates (Metalliferous Mines): H. F. Brand, H. S. Jupp, H. Moralee, H. G. Mountain, J. C. Reyneke, H. Smith, A. W. C. Stead. Electrical Engineers (Mines): V. Crewe; (Coal Mines only): S. P. Parkinson.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

THE ENCOURAGEMENT OF PROSPECTING.

In the course of some remarks contributed to the Chemical, Metallurgical and Mining Society on "Prospecting for Gold and other Ores in Western Australia," by Mr. C. M. Harris, Member, Mr. F. P. Mennell, of Rhodesia, writes:—Mr. Harris is to be congratulated on bringing before the Institution that very important subject, the encouragement of prospecting. The subject has been greatly debated in most mining countries in recent years, especially in connection with the general decline of the world's gold output. This contribution to the discussion is, I am afraid, somewhat belated, owing to its being written in the wilds, and its excuse must be that Mr. Harris has overlooked the steps which have been taken to aid prospectors in Southern Rhodesia, even before those which he has described in Western Australia. It is of special interest that very similar schemes were independently evolved in the two countries, which, though very much alike in their geology and mineral products, are very different in the conditions under which mining work is carried on. As far as Rhodesia is concerned, the question of training for miners, prospectors and others was first publicly brought forward by myself in an address to the Rhodesia Scientific Association in 1911, and published in the annual report of that body in the same year.

It was not until 1917, however, that the scheme outlined was actually carried out.

As regards actual subsidies for prospecting, this has also been carried into effect in Southern Rhodesia. As long ago as March, 1918, a resolution on the subject proposed by myself was unanimously adopted by the Second Rhodesian Mining Conference, after a lengthy discussion, in which the Secretary for Mines took part. It proposed that the Government should grant to prospectors a sum not exceeding £15 per month for maintenance and 'boy's' wages, the men to go where they chose, and retain all their finds to deal with as they pleased.

This method, haphazard as it may appear, was the outcome of much discussion with actual prospectors, and seems more likely to work well than any more elaborate scheme. The prospector is born and not made, and though he can see the advantage of going through a short course of instruction in the identification of minerals, any restriction on his movements damps his enthusiasm to such a degree as seriously to impair his usefulness.

The scheme, as actually put into operation, differs in several respects from that suggested. Owing to the Government's attitude of *non possumus*, nothing was done until the returned-soldier problem again brought the matter to the fore, as in W.A. The present scheme is limited to returned soldiers, and most of the money required is drawn from the war funds, in both of which respects it is open to criticism. Whether better results could be obtained by closer supervision and more systematic methods is, of course open to argument. Considering how erratic is the distribution of ore deposits it appears somewhat doubtful, and while prospectors should be encouraged to avail themselves of the services of expert advisers—the staff of the Geological Survey, for instance—it is dubious whether technical or scientific control would not do more harm than good under any circumstances within the sphere of practical politics.

Bwana M'Kubwa Copper.

It is rumoured that as the result of successful tests by the Minerals Separation Company upon the low-grade copper ore of the Bwana M'Kubwa Company, a powerful group has undertaken the reorganisation of the capital. We understand that the matter will not be finally decided until the report of an independent mining engineer, who was despatched to the property to check the estimated quantities of ore in reserve, has been received. It may be mentioned that the high-grade ore reserves at June, 1916, were estimated at 23,000 tons of an average value of 10 per cent., while low-grade ore down to the third level was calculated at 3,000,000 tons of 4·5 per cent. It is upon the latter that the Minerals Separation Company has proved so successful with its process. Between the fourth and sixth levels the engineers report that there are indications of at least a further 1,200,000 tons of low-grade ore. This kind of ore presents no difficulties now, and, as indicated above, the necessary capital for turning the property to profitable account is available.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

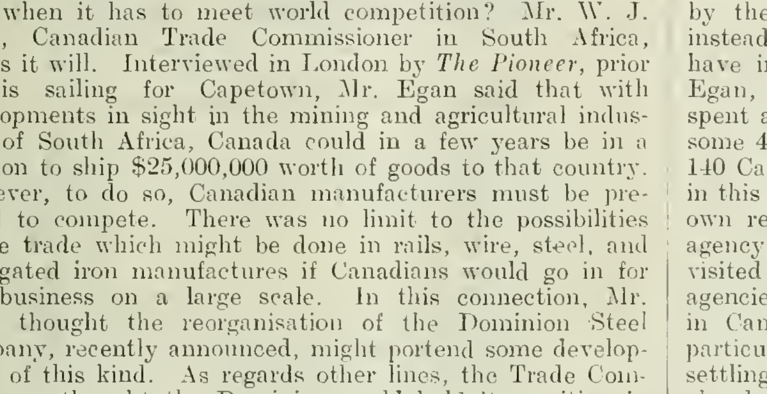
STANDARDISATION OF MINING PRACTICE.

Due mainly to conditions brought about by the war, the metal mining industry is now passing through one of the most critical stages in its history and is confronted by new problems, upon the solution and adjustment of which depends, in a large measure, its future welfare and prosperity. The chief factors contributing to the cost of production are labour and supplies. It is conceded by our leading mine operators, managers and engineers that any material reduction in the cost of labour or supplies within possibly the next two or three years cannot be anticipated, and it is not thought likely that pre-war prices will ever again prevail. This being true, the mine operator must look in some other direction to effect economics that will lower the production costs. If this cannot be accomplished it will mean, in many instances, that mines and metallurgical works will have to be closed and abandoned, which will tend to disorganise the industry. How to lower production costs and still maintain the present high standard of wages is the problem that is engaging the serious attention of mine operators and managers over the entire country.

As a solution to this problem, says the United States Bureau of Mines, Reports of Investigations, it is thought that the most promising field of investigation lies in the direction of systematising and standardising mining practice, so as to effect economies in the use of both labour and materials. In other words, to eliminate, in so far as possible, unproductive effort and waste, and thereby secure a maximum of productive results. It is not the idea to speed up work or to demand a greater effort on the part of the workman, but rather so to systematise and standardise the various underground operations that his energy will be directed into more useful and productive channels. Already some of the large mining companies in the West have conducted extensive experiments and research in this direction, and the results obtained have furnished conclusive proof of the value of standardisation of mining practice and equipment. For example, the Phelps-Dodge Corporation, under the direction of Chas. A. Mitke, has made in the past year an exhaustive study of the various underground operations in the company's mines at Bisbee, Arizona, for the purpose of standardising the mining practice. The results achieved have been most encouraging, and show that costs can be lowered even in the face of advancing prices in labour and material. More recently G. T. Townsend conducted for the same company at Tyrone, N.M., a careful study of shovelling as applied to mining. Mr. Townsend's tests showed that the majority of the labourers did not know the proper method of using the shovel, in spite of the fact that many of them had been shovelling for a living for years. By teaching the men the correct shovelling methods, and by supplying them with shovels of the proper weight and size, the tonnage in one of the large stopes was raised from 8.5 tons per man to 22.9 tons per man, an increase of 169 per cent. and, at the same time, the cost was reduced from 33 cents to 24 cent per ton. In the Butte district the North Butte Mining Company has so systemised, by means of a card system, the handling of materials such as timber, explosives, rails, pipes., as to produce a large saving in timber consumption and the use of explosives, the saving of powder amounting to approximately 30 per cent., as compared with the old-time hit-or-miss system of allowing the miner to use as much powder as he pleased. It may be seen from the foregoing that standardisation of mining practice and equipment and systemisation of handling and use of materials offer an unusually promising field for investigation. Such investigation should meet with the approval and receive the hearty support and co-operation of the entire mining industry.

Canadian Trade Commissioner on South African Trade Possibilities.

Will Canadian trade hold its place in the South African field when it has to meet world competition? Mr. W. J. Egan, Canadian Trade Commissioner in South Africa, thinks it will. Interviewed in London by *The Pioneer*, prior to his sailing for Capetown, Mr. Egan said that with developments in sight in the mining and agricultural industries of South Africa, Canada could in a few years be in a position to ship $25,000,000 worth of goods to that country. However, to do so, Canadian manufacturers must be prepared to compete. There was no limit to the possibilities of the trade which might be done in rails, wire, steel, and corrugated iron manufactures if Canadians would go in for this business on a large scale. In this connection, Mr. Egan thought the reorganisation of the Dominion Steel Company, recently announced, might portend some development of this kind. As regards other lines, the Trade Commissioner thought the Dominion could hold its position in the South African paint and varnish market, even when British competition was again a factor. He did not think British manufacturing conditions would ever be on the old pre-War basis again. Despite the drop in sterling, he continued, South African exchange was not actually against Canada in the sense that as yet our competition came from the United States, whose exchange rate was even higher. When British exports again commenced to pour into the South African market, the situation, of course, would be different. As compared with the United States, the rate was in Canada's favour, but this was offset to a certain extent by the fact that some large firms quoted in New York instead of Montreal, in order to meet bills which they might have in America. This practice was to be dropped. Mr. Egan, who had intended to spend six weeks in Canada, spent almost six months there, and in this time interviewed some 450 firms interested in the South African trade. Over 140 Canadian firms have asked him to secure representation in this field, and twenty-one companies are sending out their own representatives to study the situation. Twenty-seven agency arrangements were made by South Africans who had visited Canada on Mr. Egan's recommendation to secure agencies. Mr. Egan said industry seemed to be at its best in Canada at present. There was a shortage of labour, particularly female labour, but demobilised men were settling down rapidly. Most factories had orders for months ahead. Activity was noticeable in the Canadian textile industry, which had taken giant strides since he had last been in the Dominion. The banks were also interesting themselves very hopefully in export trade. Ninety per cent. of Canadian manufactures would find some market in South Africa, said Mr. Egan in conclusion. He also found while in Canada a considerable interest in the possibilities of German Africa, recently annexed.



Phone 3674. Box 3162.

OSBORN'S

"TITAN" Manganese Castings,

For

Rotary and Jaw Crushers and Mortar Box Liners, etc., and for all parts subjected to severe abrasion.

Samuel Osborn (South Africa), Ltd.,

Sheffield & Johannesburg.

THE POSITION OF THE KOLMANSKOP DIAMOND MINES.

In the course of their annual report for 1919, the directors of the Kolmanskop Diamond Mines, state that as approved of at the extraordinary general meeting of shareholders held on 3rd February, they have concluded the purchase, as from 1st January, 1920, of the interests held by the German South-West African Diamond Investment Company, Limited, in certain mining claims. The purchase also includes the agreements held by the Diamanten Abbau Gesellschaft to work against a share in the nett profits, the fields belonging to the Grilleutal Gesellschaft m.b.H. and one of the fields of the Vereinigte Diamanten Aktien Gesellschaft. By the acquisition of these additional mining areas, the Company's life is not only prolonged, but the directors are informed that owing to the diamonds found there being of a larger size than those recovered from the Kolmanskop Fields, the Company will be placed in a better position to supply a more uniform quality, and it is hoped that this will also be the means of additional benefit accruing to the Company by an increase in the selling price of its diamonds. The output for the 12 months under review was 4.368½ carats. Owing to the carrying out of repairs and alterations to the Schiechel Machines, it was found necessary during the early part of the year to suspend work with Plant No. 2. The management hoped to bring up the shortfall thus occasioned, but owing to the decreased efficiency of the Ovambo Labour, this was not possible. The production, however. compares very favourably with the previous year's output. The difficulty in obtaining spare parts of machinery and building material generally, still prevails. Notwithstanding this, however, it has been possible to keep the Company's plant and buildings in good repair and to effect alterations to certain of the Schiechel machines. As a result of the improvement in the diamond market. the balance of the Company's production for 1918, which remained unsold at the date of the last report, has since been realised, and resulted in an additional profit of over £14,000. So far as the production for 1919 is concerned, information has only been received of the sale of the output to 15th February last. In view, however, of the fact that a further agreement has been concluded with the London Diamond Syndicate for the purchase of diamonds produced in the S.W.A. Protectorate, at a much higher figure, the Company's diamonds which remain unsold have been taken into account at 45s. per carat. Seeing that the sales for 1918 realised just over 40s. per carat, the directors have every reason to believe that the production for the year under review will realise a higher figure than that at which it has been taken into account. The Directors draw the attention of shareholders to the fact that portion of the diamonds which were in the hands of the Diamond Regie at the outbreak of the War have since been realised and accounts have been received showing the results of such sales. These have been embodied in the attached accounts and show an additional profit of over £9,500. The balance sheet shows that. the Diamond Regie is thereby indebted to the company to the extent of £11,276 17s. 6d., and in this connection Directors would like to draw the attention of shareholders to the fact that this amount represents the equivalent of M.230050.14. Notwithstanding the considerable depreciation in the value of German currency, the directors have been informed that payment of all debts contracted prior to the War must be made at the rate of exchange then ruling, and as the company's book rate for the conversion of marks to sterling was at that time M.20.40 to the £, directors feel they are justified in showing the asset in question at its full pre-War value. Although the Profit and Loss Account shows a considerable amount standing at the credit thereof, the directors do not at present recommend the payment of a dividend. Certain matters are engaging the attention of the directors, and these might necessitate the expenditure of a large portion of the company's cash assets. For this reason directors consider it advisable to conserve the present cash in hand.

Diamond Fields Jubilee.

This being the jubilee year of the Diamond Fields, and as inquiries on the subject are forthcoming from various qaurters, the following extract from an article written in February, 1918, for the *Diamond Fields Advertiser* will be read with interest: "The result of the announcement of the discovery of diamonds was the formation in Grahamstown of a small syndicate for the purpose of finding more, and a party of Grahamstown men, composed of Alexander McIntosh, Charles Cumming, Ronald McIntosh, and Robert Dick, of Kingwilliamstown, set out for Barkly West, and succeeded in finding the first diamond-bearing kopje. This brought a rush to Klip Drift, and among the others the Barbers, who had subscribed to the first venture, proceeded to the Diamond Fields. Mrs. Barber, the mother of F. H. Barber (the discoverer of Barberton), accompanied her sons, and painted the pictures at Klip Drift which are now in the Albany Museum at Grahamstown. Klip Drift was the first alluvial diggings worked. It is further stated that the first parties there were the Kingwilliamstown party, the Grahamstown party, and the Colesberg party, and that the Natal party, under Lieut. (afterwards Major) Rolleston, came first to Hebron, and then worked their way to Klip Drift, and there met the Kingwilliamstown party working at a place called the Kingwilliamstown Kopje. The Kingwilliamstown party advised Lieut. Rolleston to prospect on the other side of the river Pniel, and if it turned out trumps to give them the first tip in recognition of their advice. The Natal party went over there, and in a short space of time found a kopje called "Pniel Kopje," and discovered diamonds in profusion. This caused a big rush in the month of January, 1870. Someone challenged a statement in 1915 that diamonds were found at Klip Drift in 1869, when Mr. Douglas Campbell, in a letter to the *D.F. Advertiser*, dated November 26, 1915, said that he had made inquiries and found a reference that diamonds to the value of £26,413 were exported in the year 1869. They could not have come from Pneil, as it was not opened up till January, 1870, as before stated, which shows presumably that Klip Drift and other places on the Barkly West side of the river must have produced them. This does away with the contention that Pniel was the centre from which all other river diggings radiated. and that Lieut. Rolleston and party were the first arrivals."

Transvaal Consolidated Land and Exploration Company, Limited.

(INCORPORATED IN THE TRANSVAAL.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-fifth Ordinary General Meeting of Shareholders for the year ended 31st December, 1919, will be held in the Board Room, The Corner House, Johannesburg, on WEDNESDAY, 16th JUNE, 1920, at 11.30 a.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st December, 1919, and the Reports of the Directors and Auditors.
2. To confirm the appointment of Mr. J. R. Leisk as a Director of the Company in the place of Mr. C. Meintjes, resigned, and to elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
3. To determine the remuneration of the Auditors for the past audit. and to appoint Auditors for the ensuing year.
4. To transact any other business which may be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Share Transfer Books of the Company will be closed from 10th to 16th June, 1920, both days inclusive.

Holders of Share Warrants who desire to be present or represented at the Meeting must deposit their Share Warrants at the places and within the times following:

(a) At the Head Office of the Company, in Johannesburg, at least three days before the time appointed for the holding of the Meeting.

(b) At the London Office of the Company, No. 1 London Wall Buildings, London, E.C.2, at least 30 days before the date appointed for the holding of the Meeting.

(c) At the Office of the Crédit Mobilier Français, 30 and 32 Rue Taitbout, Paris, at least 30 days before the date appointed for the holding of the Meeting. Only Share Warrants bearing French stamps can be deposited at the Crédit Mobilier Français.

And shall otherwise comply with the "Conditions as to the issue of Share Warrants" now in force.

Upon such deposit a Certificate, with Proxy Form, will be issued under which such Share Warrant Holders may attend the Meeting either in person or by proxy.

By Order of the Board,
W. E. LEWIS,
Secretary.

Head Office:
The Corner House, Johannesburg,
4th February, 1920.
58510

THE WEEK IN THE SHAREMARKET.

Recovery After Sharp Decline—Diamonds and Silvers Active—Holidays Intervene.

THE continued fall in the gold premium remains the serious factor in the situation. The March returns do not promise too well, and there is considerable anxiety manifested in mining circles regarding the future of the low-grade mines. All gold mining shares, even the gilt-edged Far East Rand variety, have suffered in consequence of the decline in the price of the product, though some improvement was noticeable on Thursday. Diamonds, after a setback, recovered and enjoyed some renewal of activity, but tins, on the declining price of that metal, eased off considerably. Transvaal Silvers were a bright feature, and are being steadily purchased from weak holders. Several new diamond and "outside" gold propositions are said to be on the point of flotation. In oils, Africans were quiet, but Sakalavas had a spurt and were actively dealt in. The day before the Easter holidays, business was quiet before High 'Change, but Modder Deeps were bought at 50s. 6d., Orion Diamonds at 6s., Sakalava Oils at 8s. 6d., Victory Diamonds at 2s. 9d., and Therons at 15s. On the Call, a good many stocks were higher, but business was not brisk and the coming holidays curtailed business. New Modders were 9d. higher at 77s. 6d. sales and buyers; Modder B.'s 1s. at 143s. 6d. sales and buyers; Modder Deeps 3d. at 56s.; Modder East 3d. at 25s. 10½d. and 26s. sales; Van Ryn Deeps 6d. at 92s. sales and buyers; New Unified 6d. at 6s. 6d.; and Lydenburg Farms 3d. at 7s. bid, etc. Springs Mines, Sub Nigels and West Springs were virtually unchanged, but Brakpans were lower at 67s. 6d. sales. Crown Diamonds were unchanged at 12s. sales; Frank Smiths easier at 18s. sales and sellers; Robert Victors substantially higher at 17s. 6d. sales, but Rouxville were weak and lower at 20s. sales. Hume Pipes were 1s. lower at 27s. 6d. sales. Transvaal Silvers were higher and the Options 1s. 6d. up at 34s. sales. Union 5 per cent. Loan, tax free, was 2s. 6d. lower at £101 17s. 6d. sales, and the 5 per cent. Taxable Loan 5s. down at £96 15s. sales.

The following dividends are declared: Ferreira Deep, 2s.; Transvaal Gold Minings, 1s. 6d.; and this company has drawn £15,000 debentures, payable on April 1. The Masai Prospecting Syndicate, Ltd., has been registered with a capital of £7,500, in 60,000 shares of 2s. 6d.; working capital £2,000. Reserve shares, 12,000. Directors, Messrs. S. W. Collier, T. C. Alison and I. R. Armstrong Kelly. The syndicate has several concessions in different parts of British East Africa, and has discovered indications of diamond and gold mines in various directions, in addition to an area of limestone suitable for making cement.

	Frid 26th.	Sat. 27th.	Mon. 29th.	Tues. 30th.	Wed. 31st.	Thurs. 1st.
Anglo-Amer. Corp.	41 9	42 0	43 6	43 0	43 3	42 9*
Apex Mines	6 9*	6 9	6 9	6 9*	7 3	7 0*
Bantjes Cons.	3 3†	—	3 0	3 1	3 1*	3 3*
Blaauwbank Dmds.	80 0†	—	—	—	—	—
Brakpan Mines	—	—	67 6*	70 0†	66 0*	67 6*
Breyten Colls.	8 3*	—	8 3*	8 0*	—	9 0*
Brick and Potteries	4 6*	—	4 6*	4 6*		4 6*
Bushveld Tins	1 0	1 3	1 4	1 4*	1 6	1 7*
Cinderella Cons.	6 6	6 6*	6 6*	7 0	6 6*	7 0†
City and Subs.	6 0*	6 3*	6 0*	6 6*	6 6*	6 6*
City Deeps	54 0*	57 6†	57 6†	57 0	—	59 0†
Clydesdale Colls.	—	22 0*	22 0*	21 0*	24 0*	24 6*
Con. Langlaagtes	20 0*	24 0†	21 0*	21 0*	22 0	22 6*
Con. Main Reefs	13 0*	13 0	13 0	13 3	13 6*	13 3*
Con. Mines Select.	30 6	—	30 0*	30 0*	30 0*	30 0*
Coronation Freeholds.	1 11†	1 6*	2 0†	2 0†	1 6	1 9
Coronation Syndicates	—	14 0	12 6*	15 0†	14 0	—
Crown Diamonds	12 6	12 3	12 3	11 6	12 0	12 0
Crown Mines	62 6*	65 0	65 0*	—	—	—
Daggafontein Mines	17 6	17 6*	18 3	—	17 9*	17 6*
Do. Opts. (4 yrs.).	1 0	0 11	0 9*	0 11	0 9*	0 11*
East Rand Coals	2 7	2 8†	2 6	—	2 6	2 1*

*Buyers. †Sellers. aOdd lots. bEx London.

	Frid 26th.	Sat. 27th	Mon. 29th.	Tues. 30th.	Wed 31st.	Thurs. 1st.
East Rand Deeps	1 0*	—	1 0	1 1†	0 11*	0 10*
East Rand Minings	—	—	22 6†	22 6†	—	—
East Rand Props.	9 9*	10 0*	10 3*	11 0	11 0	10 6*
East Rand Debs.	£71½*	£71*	—	—	£71	£71*
Eastern Golds	1 4	1 3*	—	—	—	—
Ferreira Deeps	10 0*	—	10 0*	—	12 0†	—
Frank Smith Dmds.	14 3*	14 6a	15 6	16 1½	18 0	18 0
Geduld Props.	47 9	47 3*	48 9	48 6	48 0*	48 0*
Gleneairns	1 0*	1 0*	—	1 3*	1 0*	1 0*
Glencoe Collieries	—	4 0*	4 9*	5 0*	5 0*	5 0*
Glynn's Lydenburgs	17 0†	17 0†	15 0*	16 6	17 0†	17 0†
Govt. Areas	90 0	89 9	90 9	91 3	91 0*	91 6*
Jhb. Bd. of Ex.	36 0*	36 0*	36 0*	36 0*	36 0*	36 3*
Jupiters	5 0	5 9	4 9*	5 0*	5 3*	5 0†
Klerksdorp Props	2 1*	2 3*	2 3*	2 0a	2 3*	2 3*
Knight Centrals	5 0	4 11	5 2*	5 3	5 2*	5 2*
Knights Deeps	—	—	9 6†	—	9 6†	—
Lace Props.	13 0	12 9*	13 0	13 0*	13 6*	13 0*
Leeuwpoort Tins	25 0	25 3	26 6	27 0	26 3	27 0*
Lydenburg Farms	6 3*	6 7*	6 9	6 6*	6 9*	7 0*
Middelvlei Est.	—	—	1 5*	1 8†	1 3*	—
Modder B.s.	135 0*	135 0a	141 0	141 0	142 6*	143 6
Modder Deeps	50 0	50 9	50 9	50 9	50 3	50 6
Modder Easts	24 3	24 3	25 0	25 0	25 9	24 0
Do. Opts. (3 yrs.)	3 9	3 11	4 3	4 4	4 11	4 7*
Do. Opts. (4 yrs.)	8 1	8 0	8 7	8 8	9 6	9 9
Hume Pipes	25 6	25 6	26 6	27 6*	28 6	27 6
Natal Navig. Colls.	24 6*	—	24 0*	24 6*	25 0*	24 6*
National Banks	285 0†	285 0†	280 0†	280 0†	280 0†	280 0a
New Boksburgs	2 0	2 0†	2 0†	1 6*	2 0†	1 6*
New Eland Diamonds	—	—	80 0a	73 0*	70 0*	—
New Era Cons.	10 0*	—	9 9*	10 0†	9 9*	10 0
New Geduld Deeps	1 10	2 3†	2 0*	2 0*	2 0*	2 6†
New Heriots	—	—	—	—	—	11 0*
New Kleinfonteins	10 0*	11 6*	12 3*	11 9	—	11 0*
New Modders	73 6	74 6	76 0a	76 6	76 9	77 6
New Primrose	—	—	—	—	—	5 0†
New Unifeds	—	—	—	—	6 0*	6 6
Nigels	—	9 0*	—	—	7 6*	7 6*
Nourse Mines	—	—	12 0*	14 0†	12 0*	12 0*
Pretoria Cements	96 6*	96 9*	97 0	97 0	95 6	95 0*
Princess Estates	—	2 0	—	—	—	2 0*
Rand Collieries	3 0*	3 0*	—		—	3 0*
Rand Nucleus	—	—	—	—	—	1 6*
Rand Select. Corp.	—	88 9*	89 6*	88 0*	—	—
Randfontein Deeps.	5 9*	5 6*	7 0†	6 3	6 0*	6 0
Randfontein Est.	20 6*	21 0	—	22 0	21 3*	21 6*
Roberts Victors	16 6†	16 6†	14 6	14 9*	17 0*	17 6
Rooibergs	10 3	10 0	10 0*	9 6*	9 0*	9 3*
Roodepoort Uniteds	—	—	4 0*	1 0*	4 0*	—
Ryan Nigels	4 3	4 0†	4 0	3 6*	—	3 6*
Shebas	3 0*	—	3 0*	3 4†	3 1†	2 6*
Simmer Deeps	—	3 0†	3 0†	3 0†	3 0†	3 0†
S.A. Lands	4 9*	5 0	5 3*	5 3*	5 6*	5 6*
Springs Mines	51 0	49 0*	50 0	50 9	51 0	52 0a
Sub-Nigels	15 9*	15 9*	16 3	16 0	16 3	16 3
Swaziland Tins	—	—	—	13 9*	13 9*	14 6
Trans. G.M. Est.	14 6*	15 0*	—		15 0*	11 6a
Van Ryn Deeps	91 6	91 0	91 9	—	91 6	92 0
Village Deeps	—	—	14 6*	—	—	—
Village Main Reefs	—	—	10 0†	10 0	9 6†	—
West Rand Cons.		—	—	—	—	3 9*
Western Rand Est.	5 9*	5 0*	7 0		6 3	6 3*
Witbank Collieries	—	—	—	—	77 0†	—
Witwatersrands	17 6*	17 6*	—	18 0*	19 0†	—
Wit. Deeps	10 0*	10 0	10 0*	9 6*	10 0*	—
Wolhuters	6 0†	5 10*		5 6*	6 0†	—
Zaaiplaats Tins	10 0*	9 9	10 0	9 10*	10 3	10 3*
Union 5 per cent	£101⅞	£101¾	£101¾	£101⅞	£102	£101⅞
Union 4½ per cent.	£96½†	£96½†	£96½*	£96½*	£96½†	£96½†
Union 5 per cent Tax	£97	£97*	£97	£97†	£95½*	£96½*
New States	27 9	27 0*	28 0	27 3	27 0a	27 3
Rouxville Diamonds.	23 9†	23 0†	20 0*	22 6†	—	20 0
South Van Ryns	9 3*	9 3	9 1*	9 0*	9 0*	—
S.A. Alkali	20 0	21 0†	19 0*	—	20 0*	—
Transvaal Silver	48 0	47 6	47 6a	48 6*	50 6*	51 3*
Do Options	29 0	28 0	27 6a	29 0	32 6	34 0
Tweefontein Colls.	25 0†	25 0†	25 0†			
Van Dyks	3 0*	3 0*	—	3 0*	3 0*	3 6
West Springs	18 3	18 0	18 9	19 9	20 0	19 10*
Do. Options	3 6	3 6	3 9	4 0*	4 3*	4 3*

*Buyers. †Sellers. aOdd lots. bEx London.

HEAD, WRIGHTSON & CO. (South Africa), LTD.

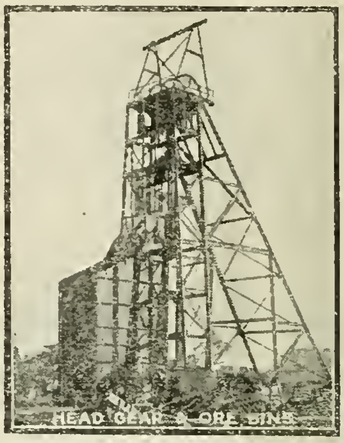
P.O. Box 1034. JOHANNESBURG. Telephone 3524.

Makers of

**Colliery Plant, Gold Mining Plant,
Coal Washers, Conveying Plant,
Headgears, Bins and all classes of Structural Steelwork**

Registered Office and Works:
Teesdale Ironworks,
Thornaby-on-Tees.
Stockton Forge Works
and
Egglescliffe Foundry,
Stockton-on-Tees.

South African Office:
47-48, Standard Bank Chambers,
Commissioner Street,
JOHANNESBURG.



IMPORTANT TO SECRETARIES OF COMPANIES.

THE ARGUS PRINTING AND PUBLISHING COMPANY,
LIMITED, make a Speciality in the

PRINTING OF COMPANIES' ANNUAL REPORTS,

and can execute these

IN TWENTY-FOUR HOURS AFTER RECEIPT OF COPY.

THE NEW MACHINERY LATELY INSTALLED IN THEIR WORKS is the means of their expediting this particular class of work.

ESTIMATES GIVEN ON APPLICATION TO

The Argus Printing & Publishing Co., Ltd.,

Box 1014. Lower President Street, Johannesburg.

'PHONE UP 3232. Representatives especially set apart to wait upon Clients on receipt of a Telephone Message.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Disturbed Commercial Atmosphere—Property Less Active—Price of Gold a Big Topic—Exchanges Levelling Up—Scarcity of Deals—Iron, Steel and Machinery—Oils, Colours and Glass—Blue Hydraulic Lime—Electrical Goods.

A mining material broker states that general business is not any too good, as an uncertain atmosphere in commercial affairs is evident. This view is supported by a property sale on Tuesday, which was not exactly bad, but some of that activity noticed for many months past was lacking, partly on account of the uncertain outlook and partly because of the rent-profiteering Act now before Parliament, and again the price of gold has fallen to £5 5s. 8d. per ounce. All merchants and financiers are anxious about the price of gold, in fact it is a big topic of conversation, which is not surprising, considering how our great industry depends upon its keeping up beyond the five pounds level. In Australia the Mint there is selling gold at £5 2s. 0d. an ounce to dentists and others requiring it for trade purposes, therefore it would seem that the present price may keep up for a year or so, which is the opinion of the chairman of the Jupiter Co. Another important point is the levelling up of the London-American Exchange, as Reuter considered it of sufficient importance that the exchange of 3·90 was specially cabled. This at 16s. 3d. is a 3s. favourable difference as compared with last month, which illustrates how fast things are moving, and remember the actual gold was not shot away during the war, therefore that and more is now in existence somewhere or another.

We shall soon be able to trade more freely with America and Canada, although according to an influential British firm, who has had special representatives in America testing the markets, their prices are higher there than in Britain. Therefore if special cargoes came from America at cheaper rates it would be a sure sign of dumping, to clear some of their stocks unduly accumulated, owing to the adverse exchanges. The fact is that the result of the low Exchange has been to send so many orders to Britain that the factories are blocked and prices are ever on the up-grade in consequence. The up-grade, however, is kept very much on a similar level to the American. In consequence of the difficulties in obtaining regular consignments from oversea we are getting short of essential lines, particularly Baltic timber, but when the Exchanges permit trading fully with America, that position might be relieved somewhat by obtaining Oregon timber.

TIMBER AND BUILDING MATERIALS.

There is apparently great difficulty in obtaining our standard 9in. x 3in. solid deals from the Baltic. What usually happens is that quotations are received, giving the customary lines, with fewer deals, with the condition that if one takes them they must be part of a general lot, and it is not unusual in practice to find the number of deals cut down even then. So much so that contracts are being fixed up through the Baltic Exchange in London whenever possible. The price of deals in Johannesburg from the floating stock available is quite 2s. per foot, and difficult to obtain at practically any price. The big yards, however, have stocks for regular customers, at say 1s. 11d. per foot. Other lines are much the same with a firmer tendency. Deals, 1s. 11d. upward; floorings, 10½d.; ceilings, 6½d. to 7d.; Oregon and pitchpine, when to be had, are about 10s. 6d. per cube. Galvanised roofing iron, 1s. 7d. to 1s. 8d. per foot, but its replacement cannot be landed here under 1s. 8d. on present home costs. Business is fairly good in the timber and iron yards, on the side of conservative selling, especially in the second hand yards. There is very little on hand, and no serviceable quotations can be made, as the price for the floating stocks available in the various yards is only governed by the actual pressing demands. Orders are coming in freely enough, especially now so many farmers are in town, but these can only be partially executed, therefore business is very indifferent. The demand for bricks is still excellent, and it may be that it is less difficult to place contracts, or perhaps, what is really happening is that orders will be guaranteed for delivery in say one or two instead of three or four months as formerly. Prices, however, are very firm indeed. Some people are beginning to inquire as to what effect the Rent Governing Act will have upon the building trade, as people will not put money into a moribund speculation, with its heavy pains and penalties.

IRON, STEEL AND MACHINERY.

The proprietor of a wire fencing factory was interviewed, and he said that business was quite good, chiefly because they had been launching out from the ordinary fencing work to making screening for the mines as well as other small details. In addition to this his factory was producing quite a large range of wire work for florists, with their numerous requirements for producing choice flowers. The stationers also have gradually given them a fair amount of work for paper baskets, racks and other small sundries. Gardeners were also fair customers, and shopkeepers, such as milliners and others requiring show stands, and a fair amount of work has been done for agricultural show purposes.

As compared with some years ago the factory is much busier and larger, and more men are employed: it is not too much to say that it is a hive of industry. The principal point, however, is that with up-to-date machinery and the price of labour in England and America, he thinks that his industry is sufficiently well established to be a permanent thing in Johannesburg, because if perchance an oversea line comes along to upset calculations in the shape of price, it will not be difficult to cultivate other lines. As regards the iron trade, the Dunswart price from merchant to retailer is 33s. per 100lbs. for the general run of iron, but small rounds are 36s. 6d. Business during the last 10 days has been quite brisk for bar iron and steel from all parts of the Union, but nothing much in Johannesburg on account of the engineering strike. Imported iron and steel, ¼in.

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7 in.)

COULD PRODUCE

Rounds and Squares (to 6 in.), Channels, Joists, Tees Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

rounds, 55s., but there are only small quantities in town; $\frac{3}{8}$ths steel, 44s.; ditto iron, 42s. 6d.; $\frac{1}{2}$ and $\frac{5}{8}$ths iron and steel, 38s. 6d.; $\frac{3}{4}$in. iron, 37s. 6d.; ditto steel, 38s. 6d. Small flats, 50s., very scarce; 1 inch flats, 37s. 6d. to 45s. 6d.; big sizes, 37s. 6d. to 40s. Hollow drill steel, $1\frac{1}{4}$ inch is on the way, and will be landed here at 11d. per lb. A quantity of naval bronze rods is available for underground work, which is to prevent destruction by acid in the water. Another set of quotations are steel plates, 50s. to 52s. 6d.; of ordinary flat steel round a parcel was sold during the week at 55s. 6d. Shovels 65s. to 70s. a dozen; wheelbarrows, 75s. each; wire nails, 50s. to 65s. Hafting, $7\frac{1}{2}$d. to $8\frac{1}{2}$d. a lb.; drill steel, $7\frac{1}{2}$d.; tool steel, 1s. 6d.; hollow, $10\frac{1}{2}$d. lb. Bolts and nuts, $\frac{3}{8}$ths, 1s. 3d. lb.; $\frac{1}{2}$ inch, 80s. 100 lbs.; $\frac{5}{8}$ths, 75s.; $\frac{3}{4}$, 70s.; $\frac{7}{8}$ths, 67s. 7d. Brass rods and plates, 2s. 3d. to 2s. 9d. Barbed wire, 60s. 100 lbs. The party giving this information says that the people must import barbed wire to come out at the present prices.

The mills will not take orders for either guaranteed price or delivery, therefore importers are chary about giving any orders, as it may happen that when the present fencing activity is over prices may fall, as present rates have reached a point where it is dangerous to contemplate holding barbed wire stocks or having them on the road.

Oils, Colours and Glass.

The feature is still the scarcity of turpentine; the nominal price is 190s. for 2 4's and 200s. for 10 1's refilled in Johannesburg. It is said that 220s. per case of either kind is being asked in some quarters where a few cases are available. This illustrates the real position of the market. White lead is 100s. to 105s. in Johannesburg, but a cable was received during the week stating that it has dropped £5 a ton in England. Linseed oil, boiled, 130s. a case of 2 4's, aod 125s. raw. Resin, 9d. per lb. Cup grease, $10\frac{1}{2}$d. lb.; and ordinary anti-friction, 6d. per lb. Salad oil, 150s. for 2 4's, 160s. for 10 1's. African nut oil, 110s. South American nominal. As regards plate glass, it is so acutely scarce in Johannesburg that the following little episode which happened during the present week may be mentioned. A firm of distributors sold one sheet of plate glass to a customer. The sellers were badly in need of same themselves, and so made inquiries, when the customer agreed to let them have the sheet he had purchased at its original cost, because he said, "I am not making any alterations to my shop now, because I do not wish to spend a fairly good sum, aod then see the new Government Profiteering Act come along to do me out of the prospective profit that I may be entitled to." This may be only a small matter, but it is not so small as one would think, as the Rent, Profiteering, and Traders' Profiteering Bills now before Parliament have created a considerable amount of stir in the various circles concerned. These Acts recall that Lord Milner once said: "You, gentlemen, are not the people concerned," as they were discussing a Cusfom House Act, "but it is the 1 per cent. of people who must be held in check." Certainly, the property profiteering Act has caused considerable consternation, and undoubtedly the auction sales this week have reflected this new turn in affairs. A builder intended to build three houses on one stand, making each one an exact duplicate of a flat, but now he is holding his hand to see what the real Government Bill will be like at the finish.

Blue Hydraulic Building and Plaster Lime.

Business in this line has been maintained, although there has been a slight falling off in the local market, owing to the scarcity of bricks. The price of second hand bags has risen considerably lately, and this coupled with the higher cost of coal, stores and wages, tends to compel manufacturers to raise the price of lime, but only to such a figure as will leave them the same margin of profit as obtained say twelve months ago.

As the demand for lime has been brisk several mushroom producers have come into the market, but their product has been found to be inferior to well-known branks, in every respect. The lime is of a very dark colour, coarse and gritty. It is bagged in small bags, but being of a heavy nature weighs the standard weight. Contractors have been complaining that several merchants have sold the inferior lime, claiming it to be some other make, and in many cases architects have condemned several jobs through the use of this lime.

The large works just completed outside Krugersdorp has commenced firing its kiln, the result of which is awaited with much interest by the building trade, as it is hoped by its entrance into the market, the position will certainly be eased and a good supply of lime ensured. This kiln is the largest of its kind in the country, and is a gas-fired non-contact kiln. The dolomite not coming in contact with any coal or ash, the lime produced is bound to be of a very pure nature.

Electrical Goods.

In this market a consignment of about 10,000 ceiling roses has just arrived, which, while relieving the present acute shortage, will of course not go far towards providing for future requirements. We understand, however, that further shipments are on the way. Lamp shades and adaptors are practically unprocurable, while wiring and tubing, although there are still fairly good stocks on hand, are tending towards scarcity, and are becoming dearer. Lamps are about the same as last quoted, with a tendency, which is shared by nearly all electrical material lines, to increase in price. The fact is dealers are constantly being advised that acording to prices ruling oversea replacements of goods can only be effected at higher costs. Town and country business, although handicapped by shortages in many lines, still remains satisfactory.

Bank Note Uniformity.

In view of the proposal to establish a Reserve Bank for the Union, which should have the sole right of note issue, the following from the annual report of the Rhodesian Chamber of Mines is of interest: "The question of the desirability of uniformity in regard to bank notes issued by the South African banks was again brought to the notice of the Chamber, particularly in the interests of native workers who, owing to the variety and size and colour of the notes, did not understand their value, and were often in this respect at the mercy of unscrupulous storekeepers and others. The local banks informed the Chamber that in consequence of abnormal conditions which still prevailed, the question was not yet a practical one. It was, however, considered not improbable that the Union Government might take certain steps in the desired direction during the next session of Parliament."

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 23 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record.*

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

Company Meetings.

JUPITER G.M. CO.

Mr. D. Christopherson reviewed the operations of the Jupiter G.M. Co. for last year at the twentieth ordinary general meeting of shareholders on March 26, and said the operations during the year under review, after allowing for £32,000 received and estimated to be receivable in respect of premium on gold sales, showed a profit of £2,952, to which had to be added £7,387 for sundry revenue. The final result of the year's operations showed a balance of £8,541 as being carried to appropriation account. It was more than likely that the amount to be received on account of the gold premium up to 31st December would be somewhat more than had been estimated; but for the purpose of making up the annual accounts of companies where the financial year ended the 31st December, the Chamber of Mines agreed that a figure of £5 10s. per ounce was a reasonable figure to take on account of gold that had not been realised.

Gold Premium and Wages.

Whilst it must be remembered, continued Mr. Christopherson, that the gold mining industry was only in a position to realise a premium on its product during the latter part of 1919, it has also to be remembered that working costs during the same period have also materially increased on account of increased wages to employes. It is perhaps not generally recognised to what extent wages on these fields have been increased. The following figures may, therefore, be instructive. During 1916 the total amount paid out in white wages was £59,000, whereas in 1919, with practically the same white labour force, the figure was £93,000, which amount includes only two months of the last increase in wages. Thus, assuming the last increase had appertained during the whole of the 12 months, the last named figure would have been £108,000, or an advance of £49,000 (over £4,000 per month as compared with 1916, which is further increased to £62,000 if the additional wages and bonuses paid to natives is taken into consideration, and this on a mine only crushing 23,000 tons per month. These figures emphasise how, under present conditions, future profits on such mines as this are dependent upon what premium on gold is obtained. The realisation of an additional 25s. per fine ounce is equivalent to a premium of 29½ per cent. on the normal value of gold; the above increase for white and native wages is equivalent in the case of this company to a premium of 20 per cent. on the normal value of gold. On to this, however, has to be added the present heavy bank charges. The banks are now charging the mining companies 6 per cent. for advances against gold as against 3-16th per cent. a few months back. Consequently, under present conditions very little benefit is derived by the company even if a 29½ per cent. premium is obtained.

Expense of Packing.

As you will see from the reports, working costs for the year were 24s. 1.88d., as compared with 19s. 1.09d. for 1916, or an increase of just over 5s. per ton crushed; whilst the grade (excluding the premium realised) was 22s. 9d. as compared with 22s. 1d. Had the 1916 costs been obtained during 1919, the profit made would, on the 276,000 tons crushed, have been £69,000 more. Unfortunately the bad state of the ground and the heavy pressure throughout the mine (especially in the Howard Shaft, where better values are met with) makes mining exceptionally difficult and necessitates expensive and close packing. These conditions, as time has gone on, have not improved, but have entailed a growing necessary expense. To exemplify this, the total amount spent in packing during 1916 was £17,057, whilst in 1918 it was £26,700, and in 1919 £31,000. These ground conditions and the consequent curtailment of shaft-sinking limit the amount of development that can be carried on. You have previously been told it is impossible to continue the sinking of the Howard Shaft, as the ground is such as to make sinking prohibitive, not only as regards cost, but also progress. Last year I mentioned that in order to develop the lower levels, our engineers were considering the advisability of sinking a sub-vertical shaft; but until the position is more assured so as to warrant the carrying out of such costly work, this is being held over.

Conserve Cash Resources.

At the end of the year the company had £88,180 cash assets, consisting of £53,164 cash, whilst the balance was represented by stores and investments, etc. The board consider that at the moment it is to the interest of shareholders to conserve the cash resources of the company, as, even if such a sub-vertical shaft as I have referred to was sunk, there is nothing to indicate the development therefrom is likely to open up better values than the average grade of the mine, and unless it can be seen in the near future that conditions are likely to alter so as to indicate that such expenditure is justified and will prove profitable a different policy may have to be adopted, namely, to stop all development and to work out as far as possible the ore already opened up and the reclamation ground, and thereafter to realise the remaining assets.

Premium on Gold.

I have felt it my duty to put before shareholders the position as it appears today, but I do not wish to put a too pessimistic view before you. Those who may be considered best qualified to judge lead one to hope that a premium on gold is likely to be realised for some years to come, probably not so high as it has been recently, but at any rate sufficient to make low grade mines profitable propositions provided better economic conditions can prevail, especially in two directions, of which the first is a reduction in the present high cost of living, more especially as regards foodstuffs and clothing; and the second, some relief from the existing heavy bank charges. With a continuance of the premium on gold, a reduction in these two items alone would materially ease the position, which would undoubtedly be further strengthened if there were (a) a steady native supply, which could be largely assured if the industry were allowed to obtain labour from tropical areas; (b) improvement in the efficiency of labour. An improvement in this respect could to a great extent be attained by more settled conditions of labour, as, for instance, the discontinuance of lightning strikes which unfortuntaely still occur. These strikes often last only a day; they not only cause monetary loss to all concerned, but are also bound to tell on the general efficiency of the work on the mines, and more particularly on the efficiency of the native.

The report and accounts were adopted.

Lieut.-Col. F. Leslie Brown, D.S.O., and Mr. W. S. Smits were re-elected to the directorate.

Messrs. Douglas, Low and Co. and Mr. Charles Stuart were reappointed auditors.

The Principles of Oil Accumulation.

The search for oil is being carried out throughout the world just now, and the subject is of such wide interest that the following conclusions arrived at by Alex. W. McCoy after a series of carefully-conducted experiments are worthy of consideration: (1) Bituminous shales are in close relationship with the producing sand of an oil-field. (2) This bituminous material is in solid form, and is only changed to petroleum in local areas of differential movement. (3) After such a change is made, the accumulation of oil into commercial pools is accomplished by capillary water; and this interchange only takes place in local areas where the oil-soaked shale is in direct contact with the water of the reservoir rock. Such conditions are explainable either by joints or faults. (4) After the oil once reaches the sand, some adjustment takes place until the oil has found the larger openings, and then it remains there indefinitely. (5) The amount of oil in any field could have been derived from normal bituminous shales in close proximity to the pay horizon. (6) These five statements also lead to another general conclusion, that areas of maximum differential movement are in accord with anticlinal structures. It has been noted from a study of the majority of pools in the American mid-continent field that the maximum sub-surface faulting is found on the flanks and sides of the anticlines, and that the best production runs in trends parallel to the faulted zones. It has also been noted in a number of cases that production which is not related to marked anticlinal or dome structure bears the same close relation to subsurface faults.

The New Era Consolidated, Limited.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Eighteenth Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Second Floor, "The Corner House," Johannesburg, on Thursday, the 27th day of May, 1920, at 4.30 o'clock in the afternoon, for the following business:—

1. To receive the Reports of the Directors and Auditors, and to consider the Balance Sheet and Profit and Loss Account for the year ended 31st December, 1919.
2. To elect two Directors in the place of Messrs. J. H. Keegan and R. Des Clayes, who retire by rotation in terms of the Articles of Association, but are eligible and offer themselves for re-election.
3. To fix the remuneration of the Auditors for the past audit, and to appoint Auditors for the ensuing year.
4. To transact such other business as may be transacted at an Ordinary General Meeting.

The London Transfer Registers of the Company will be closed from the 27th April to the 1st May, 1920, and the Head Office Transfer Registers from the 22nd May to the 10th June, 1920, all days inclusive.

By Order of the Board,

THE CONSOLIDATED MINES SELECTION COMPANY, LTD. (ENG.),
Secretaries.
Per J. B. POWRIE.

Postal Address: P.O. Box 1128.
Head Office: Second Floor,
"The Corner House," Johannesburg.
15th March, 1920.

REPORT OF THE DIRECTORS

For the Year ended 31st December, 1919.

To be submitted at the Eighteenth Ordinary General Meeting of Shareholders, to be held in the Board Room, "The Corner House," Johannesburg, on Thursday, the 27th May, 1920, at 4.30 p.m.

To the Shareholders,
NEW ERA CONSOLIDATED, LIMITED.

Gentlemen,—

Your Directors beg to submit their Report and the audited Financial Statements for the year ended 31st December, 1919.

CAPITAL.

The authorised Capital of the Company remains unaltered at £100,000 in 400,000 shares of 5s. each, fully paid and issued.

PROPERTY.

During the year your Company's 5 per cent. interest in Mynpachten Nos. 514 and 525 on the Farm Geduld No. 24 was sold for the sum of £3,600, which amount was credited to the Profit and Loss Account, as Property Account, in which this interest was included. had been written down to the nominal figure of £1 at 31st December, 1918.

Your property holding is now as follows:—

Mynpacht No. 462 on Klippoortje Nos. 2 and 13, equal to 22.9992 Claims.

Five per cent. interest in 424 gold claims and 124 coal claims on the Farm Schapenrust No. 13.

SHAREHOLDING.

The holding of the Company at the 31st December, 1919, was as follows:—

27,871	Brakpan Mines, Ltd.
6,238	Daggafontein Mines, Ltd.
1,300	Elandsfontein Estate Co., Ltd.
12,000	(5s. shares) Modderfontein Deep Levels, Ltd.
500	New Heriot Gold Mining Co., Ltd.
1,000	(£4 Shares) New Modderfontein Gold Mining Co., Ltd. (since converted into 8,000 10s. Shares).
7,815	Rand Selection Corporation, Ltd.
20,000	Randfontein Deep, Ltd
742	Robinson Deep, Ltd., "B" Shares.
5,872	Springs Mines, Ltd.
1,000	Swaziland Tin, Ltd
12,500	West Springs, Ltd. (2s. paid).

The foregoing holding is represented in the Balance Sheet by an amount of £97,474 6s. 8d., the market valuation at 31st December, 1919, being £230,864, after allowing for Dividends receivable in respect thereof.

Your Company also holds the following Option:—

Robinson Deep, Ltd.—Option on 1,666 "B" Shares at par for seven years from 31st December, 1915

BRAKPAN MINES, LTD.

During the year 2,371 shares were taken up by your Company in the capital of the Brakpan Mines, Ltd., at £5 per share, leaving a balance of 2,129 shares still to be taken up under your sub-participation from The Consolidated Mines Selection Company, Ltd., referred to in the Directors' Report for the year ended 31st December, 1919. No call was made during the year in respect of your *pro rata* (£12,500) of the guaranteed loan.

SPRINGS MINES, LTD.

Under your sub-participation in the arrangements made for the provision of funds for the working of the Springs Mines Lease Area, a further 872 shares in Springs Mines, Ltd., were taken up during the year at £3 each, making a total of 3,103. There remain 6,128 shares to be taken up at £3 each as and when required by Springs Mines, Ltd., for the purpose of carrying out the terms of the lease, or at the option of your company.

DAGGAFONTEIN MINES, LTD.

The three-year options held in this company matured on the 27th March, 1919, and were duly exercised, 1,738 shares being taken up.

Certificates for the four-year and five-year options accruing to the Company under its sub-participation in the financing of the Daggafontein Mines, Ltd., were received during the year and sold.

Your Company accepted a participation of 5 per cent. in the guarantee of a loan of up to £250,000, which was arranged to provide Daggafontein Mines, Ltd., with further funds, so that the operations of the company might be carried on without interruption. The loan bears interest at 1 per cent. above the Bank of England rate current from time to time, with a minimum of 6½ per cent., and is to be repaid by the 1st July, 1920. If the loan is not repaid on that date, the guarantors have a right to call upon the company to pass a mortgage bond in their favour. The guarantors of the loan will receive a cash commission of 5 per cent., payable on the 31st March, 1920, and the right to call at 22s. 6d. per share any shares which may not be taken up by holders of the four-year options.

FINANCE.

The financial position at 31st December, 1919, is fully reflected in the Balance Sheet.

Cash at Bankers and on Loan, after making provision for the balance of the enemy shares purchased but not distributed, and the usual Sundry Debtors and Creditors Balances and Dividends declared, amounted to £15,908 19s.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] APRIL 10, 1920. [No. 1489.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 121

Topics of the Week:

The Gold Outlook 123
The Postmasburg Diamond Field 125
The Year with the Barnato Group 127
The Position of the Geldenhuis Deep 129
February Diamond Returns from the Transvaal Diggings 130
Sakalava Oils: New Flotation Scheme 131
New Rhodesia Flotation 132
The Week in the Sharemarket 133
South African Coal 135
The March Output: Group Returns 137
Correspondence and Discussion: "West Rand Reefs" 139
An Appreciation of the Shamva Mines 140

Engineering Section:

Arc Welding and Its Application 141

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 143
Company Meetings: Cassel Coal 146

Notes and News.

New World's Record for Rectangular Shaft-Sinking.

The Holman sinker has again been breaking records, having sunk last month 270 ft. in the south shaft of the New State Areas and 245 ft. in the north shaft. At West Springs a distance of no less than 241 ft. was sunk in the No. 1 shaft in the same period. We believe the previous record for a rectangular shaft was 236 ft. The shafts at the New State Areas are 28 ft. 9 in. by 13 ft. 9 in. in both cases, allowing 6 in. for blocking. At the West Springs, the shaft is 15 ft. by 8 ft. outside timbers. Need we say that all concerned are heartily to be congratulated on these magnificent achievements in modern shaft-sinking?

* * * *

Another Wonderful Holman Performance.

Holman cradle hammer drills continue to do excellent work. Last month these drills achieved a footage of 343·5 feet in a 12 ft. by 8 ft. crosscut at the Sub Nigel mine, working on double shift. It may be recalled that at the Geduld Mine three of these machines in 26 shifts broke 175 fathoms, which works out at 2·256 fathoms per machine shift. This remarkable drill is made by Messrs. Holman Bros., Ltd., of Camborne, England, and the two performances noted in the foregoing reflect the greatest credit on the drill and its operators.

* * * *

De Beers and Their Outside Interests.

According to a Kimberley report it is probable that the De Beers Company may devote some attention in the near future to certain outlying mines controlled by them; mines, for instance, such as the Peiser and the Voorspoed. It is said that the reasons which have induced the De Beers people to consider a policy of opening up outside properties are the present highly prosperous condition of the diamond market and also the fact that the difficulties of mining and treating deep blue are increasing as some of the old Kimberley mines attain to depths which are not reached elsewhere in the world's diamond fields.

* * * *

The Aurora West.

At the request of the Albu group, the officials of the Mine Workers' Union met Mr. A. French and Mr. Hay, the consulting engineer, to discuss the critical position of the Aurora West Mine. Mr. French explained they did not wish it stated that they were closing the mine at a moment's notice without giving the workmen due warning; but he thought some scheme could be evolved, with the help of the Union, that would enable the mine to be run for a period of probably two years—provided the gold premium were maintained—at a considerably reduced tonnage and with a smaller complement of employees. The Union has now agreed to the latter course. Should the gold "premium" continue to fall, a similar procedure will have to be adopted by certain other mines.

* * * *

Celebration of Foundation of School of Mines.

The University College, Johannesburg, this week celebrated the foundation of the School of Mines at Johannesburg. The institution, it will be remembered, was originally founded at Kimberley in 1896, under the charge of Professor J. G. Lawn, with Professor John Orr assisting. This week's function commemorated the opening of the School of Mines on March 29, 1904, in premises then situated in Kerk Street, Johannesburg, when Lord Milner presided, and Sir Arthur Lawley delivered the inaugural address. Changes of name and place have since occurred in the history of the institution, and it is anticipated that this year will see the commencement of new buildings at Milner Park, as the permanent home of the College. Owing to the large number of students now at the University College, the celebration was held in the Town Hall, Colonel Dalrymple presiding. Addresses were delivered by Mr. J. E. Adamson, Deputy Vice-Chancellor of the University of South Africa, and other speakers included the Mayor of Johannesburg, Dr. R. P. Mackenzie, C.M.G., Mr. H. O. Buckle, and Principal J. H. Hofmeyr.

The Mining Manual.

The 1920 volume of the "Mining Manual and Mining Year-book" is the thirty-fourth consecutive issue since the publication of the first in 1887. The number of companies dealt with in the present volume is 1,400, and the supplementary index with its references to earlier volumes covers a further 2,390 companies. The work covers every section of the mining market, and many mines whose shares are not dealt in at present on the London Stock Exchange are included. The supplementary index contains the names of those companies which, although still in existence, have either ceased to be of public interest or are in too dormant a state to justify their inclusion in the body of the work. The work is published by Mr. Walter R. Skinner, of 11 Clements Lane, London, E.C. 4, at the price of 20s. net.

* * * *

South African Gold Trust.

The realised net profits on the operations for the year to December 31, 1919, which are mainly derived from dividends on investments and interest on loans, amount to £107,539, from which an interim dividend of 1s. per share paid in September, 1919, the dividend on the preference shares, and French Government tax have been deducted, leaving £51,569, which, with £62,727 brought in, makes £114,296. The directors recommend a final dividend of 1s. 6d. per share, free of tax, making 2s. 6d. per share for the year, which will absorb £37,500, leaving a balance of £76,796. Immediately after the annual general meeting an extraordinary general meeting will be held and a resolution will be submitted to the shareholders authorising the sale of the assets of this company to a new company, owing to the fact that the objects of this company as set out in its memorandum are unusually limited, and do not at the present time afford adequate scope for remunerative employment of the company's capital. A circular dealing with the matter will be shortly issued to the shareholders, with the directors' annual report and accounts.

* * * *

The Tlapeng Diggings' Rush.

The opening of the diggings on Tlapeng Native Reserve, advertised for March 24th, attracted a very large concourse of intending peggers, sightseers, and others on business bent. It was obvious that such an event would attract a large number of persons intent upon a surer method of making money than diamond digging, and those who contrived to get on to the spot the things required by a thirsty and hungry gathering of men were well rewarded for their efforts. People came on the scene in every conceivable manner and by all sorts of vehicles, some of the most primitive description and others of the latest type of automobile. Of the latter vehicles, it is believed that fully 1,000 were on the spot or in the near vicinity. The pegging was presided over by Mr. J. T. Audas, Mining Commissioner for Barkley West, and there were also present: Colonel Davidson, Major Munro, Captain Pike and Captain Cumming, all of the S.A.M.R., and about 40 rank and file of the regiment. The proceedings were not well managed, and much confusion and irritation were created. A notice was posted up that the event would come off at 10 a.m. next day (Thursday). In the meantime a line had been marked off by a row of posts and flags, and the crowd lined up behind it. The proclamation was read, the gun fired, the peggers charged across the line and were soon spread over the whole area, the pegs were driven in, and the men stood on their ground waiting for disputants or any other trouble which might be going. Naturally, there were numerous arguments and divergent views as to the legal ownership of the various claims, but all were eventually settled without recourse to physical means, and the search for the elusive gems was immediately begun by some, and others, too tired and excited for anything, postponed their operations until the morrow. In spite of the numerous delays and excited rushes, good temper, generally speaking, characterised the whole proceedings, and the police had little to do in keeping the peace, but too much praise cannot be given to officers and men of the force, who were in the saddle from daybreak until sunset without any rest and very little refreshment. There were no casualties beyond a few tumbles in the rush,

Barberton Mining.

Mr. C. Worrall has written a pamphlet upon the agricultural and mining prospects of the Barberton district, for distribution at the Witwatersrand Agricultural Society's Show. Of mining he says: "There are twenty-five properties working for gold, employing approximately 300 whites and 3,000 natives, the monthly output being over 4,000 ozs. Magnesite, talc and asbestos are also being worked, but not at present to any great extent although the future possibilities are very encouraging, particularly as regards asbestos, which is being found in large bodies of excellent quality. Attention is also being paid to coal in the locality of Komatipoort, and prospects are encouraging. At Kaapsche Hoop a number of diggers are at work on alluvial gold, and although the find of large nuggets is not reported, the men are doing fairly well. The Carolina section is receiving a good deal of attention as regards gold. Discovery rights have been granted on several farms, and there is every prospect that there will be several good paying properties here in the near future."

* * * *

The Gold Premium and Pay Limits.

Dr. W. A. Caldecott contributes to the *Journal* of the Chemical, Metallurgical and Mining Society a useful diagram indicating the limits of payable yield of fine gold per ton of ore with premiums on gold with five per cent. gradations from *nil* (*i.e.*, normal) to 50 per cent. and working costs taken up to 50s. per ton. A mine yielding five dwts. becomes unremunerative with costs at 21s.; but, with a 20 per cent. gold premium, it is profitable with costs as high as 25s. 6d., and with a 30 per cent. premium 27s. 6d. An eight dwts. recovery worth normally 34s. becomes 44s. with gold premium at 30 per cent. In calculating the prices of fine gold, mint par has been taken as equivalent to 77s. 9d. per standard oz. (11-12ths fine). The percentage premium on mint par price of fine gold is equal to 1·179 x (current price in shillings per oz. of fine gold) minus 100. The payable limit in dwts. of fine gold per ton of ore milled is equal to 23·58 × working costs in shillings per ton of ore divided by 100 + percentage premium on mint par price of fine gold. It may be useful to quote the price per fine ounce in shillings and pence at varying rates of premium: Premium, 0 per cent., price per oz. 84s. 9·82d.; 5 per cent., 89s. 0·71d.; 10 per cent., 93s. 3·60d.; 15 per cent., 97s. 6·49d.; 20 per cent., 101s. 9·38d.; 25 per cent., 106s. 0·27d.; 30 per cent., 110s. 3·17d.

* * * *

S.A. Alkali.

The S.A. Alkali people, nothing daunted by past disappointments, are making another bid for success by putting the property on a sound financial basis. Experiment and investigation having satisfied the technical advisers that the company has almost unlimited quantities of high-grade solution in the pan and that the process of extracting the soda and salt therefrom is economical and effective, the directors have decided to raise the necessary capital by an issue of shares to instal such machinery and plant as is required to give an adequate daily output. With this object in view, 35,000 new shares of £1 each are now offered to shareholders for subscription at the price of 22s. 6d. per share, with the right to subscribers to take up within twelve months a further 17,500 shares at 25s. per share. This issue is guaranteed by the directors who have a similar option for the same period in consideration of their guarantee. The amount realised by this issue will cover the cost of the new machinery, which it is proposed to instal, besides liquidating all outstanding liabilities of the company. The directors are of opinion that as the demand for soda is greater than ever, and the experimental stage as regards treatment is completed, there will be no difficulty, with ample funds at their disposal, in bringing the company to a producing and dividend earning stage. The new plant is estimated to give an output of from 12 to 16 tons per day, from which the profit, calculating on a conservative basis, should be at least £3,000 per month. The directors are all well-known and respected Rand professional and business men, and the new issue is a most attractive one.

TOPICS OF THE WEEK.

THE GOLD OUTLOOK.

No apology is needed for returning to the question of the gold "premium," which this week fell away still further to 103 shillings per oz. Nor can what this narrowing margin means be too often emphasised. As Sir Evelyn Wallers showed, it means that, with working costs at their present figure, sixteen of the mines now at work, employing between them about 5,800 Europeans, will, when gold drops to 100s. per oz., be making a loss. When it drops to 90s., the number of mines affected will be increased to 26 and the number of European employees to nearly 12,000 and, when gold returns to its normal price, 31 mines, with a total of about 14,400 European employees, will no longer pay for working. The estimates are for working costs only; no allowance has been made for debenture and similar charges. These unpleasant figures clearly indicate a position that employer and employed must avert by every means in their power. It is well to realise, moreover, that no time should be lost before considering what remedies can be applied when the situation of last June again arises, as arise it must. For light on the immediate future of the premium, we anxiously scan the London and American papers, with not very reassuring results. One City authority says: "The Transvaal gold mines are, of course, deeply interested in the course of the New York Exchange, by reason of the fact that the price of gold is now ruled entirely thereby. At the time of writing, gold is quoted at £5 14s. 6d. per oz.; but even if the price were to fall to, say, £5 6s. 3d. per oz., this would, it is estimated, still mean a big addition to the gross revenue of the Rand mines. In these circumstances, holders of Transvaal gold mining shares would be well advised not to take any notice of temporary fluctuations in the price of the precious metal, as it will be a long time yet before the same can fall to anything like the statutory figure." A dramatic change came over the exchange position in mail week as a result of the decision of the British and French Governments to pay off the Anglo-French loan of one hundred millions sterling obtained from the United States, and falling due on October 15th next. This will mean huge gold shipments from London, but it is believed that the gold to be shipped represents what was sent there some time ago by Germany to pay for American foodstuffs and materials; so that it does not alter the position in London. The situation in New York will naturally also be revolutionised thereby, as it will mean the end of the credit stringency there, and possibly result in an extension of further credits to Europe. Thus, the position all round will be greatly improved, and this will also have the effect of bringing down prices of commodities, etc. The repayment of loans to America is, of course, satisfactory so far as it goes; but this is not the real corrective remedy for abnormal Exchange conditions. That is only to be found in the increase of production in England and France, and the turning of the trade balance, at present so much in favour of America, on the side of Europe. *The Statist* of March 13 says: "As to the future course of the exchange, it is evident that the influences which produced a rise in the rate during the week are at best transitory and do not indicate a fundamental or permanent improvement in our position relative to the United States. That is to say, so long as the movement of gold from this country to the United States continues, with its concomitant of a favourable situation for 'bull' operators in Wall Street and the probability of a further extension of credits to Europe on the part of the United States, the upward movement in sterling will be maintained, but when the influences acting at present are removed it will fall again, unless in the meantime our adverse trade balance with America is reduced." According to a *Times* correspondent, "the Indian Government, faced with the necessity of providing for their currency demands, has resorted to extensive purchases of gold, which have been continued until a recent date, and it may be stated that the greater portion of the 'free gold' has found its way to India. Other important purchasers have been Argentina, Straits Settlements, South Africa, Spain, Switzerland and, in a lesser degree, Holland and France. Since the recent adoption by the Secretary of State of the report on Indian currency the India Council seems to have retired from the field for the time being, the premium on gold in the bazaars having fallen considerably, and in the absence of this most important competitor it is considered doubtful whether, apart from the United States, other buyers will entirely absorb the available supplies. With exchanges at their present level the potential destinations of gold are the United States, Argentina, Japan, India, Spain, Straits Settlements, Switzerland. In a lesser degree some other Continental countries are both possible and probable buyers, but not as exchange propositions. Rumours current in New York suggest that shipments of gold from England amounting to $150,000,000 are expected. Where this huge amount of gold is to come from is uncertain, but it is abvious that taking the various factors already discussed into consideration the contributions of gold to be sold on the London market in the next few months cannot be regarded as relatively important. The Anglo-French Loan of £100,000,000 maturing on 15th October next is to be paid off and resort to shipments of gold may be made towards achieving repayment. The moral and material effect will doubtless be considerable, and will be reflected by a corresponding improvement in the position of the pound sterling, not only in New York but almost everywhere, since so many exchanges move in sympathy with the dollar. 'Such an operation (concludes the authority quoted) may cause a considerable fall in the price of gold.'" Apparently, therefore, there is a considerable difference of opinion on the question of the future of the "premium" among the authorities in London, and all we can do on this side is to begin at once to prepare for every contingency.

Silver-Lead Mines Re-opening.

A Cornish correspondent writes: "With the high prices now being obtained for hard metals in consequence of the world's shortage, attention is being directed to the revival of mines which formerly produced metals that have not figured largely in the mineral outputs from Cornwall for some years. Particular attention is now being directed to the possibilities of silver and lead production. In years gone by the production of lead and silver from Cornwall was very considerable, and the only reason for closing down these mines was because of the low price to which the minerals dropped, and not because of the exhaustion of the ores. Now that prices have materially advanced and that the demand will not be overtaken for many years to come, it is thought that several of these old mines can be profitably worked even at the present cost of production, seeing that since these mines were previously worked there has been a great improvement in mining machinery and in the processes for winning the highest percentage of metal from the ores. Apart from the possibilities in the re-opening of mines which have been previously worked for silver and lead, new discoveries of virgin silver-lead lodes have been made during and since the War in the eastern parts of Cornwall, and so far north as the neighbourhood of Padstow. Seeing that the War has produced not only a very much greater demand for all kinds of metals, but also an entirely new set of economic conditions which are much more favourable to the production on a large scale of our native minerals, the conditions in favour of the more extensive exploitation of the rarer minerals of Cornwall are extremely favourable. The revival of interest need not be confined to the production of lead and silver, but can be profitably extended to wolfram, copper and iron, of all of which Cornwall has in years past produced considerable quantities, and rich lodes of which await the enterprise of mining men for their effective development."

SIEMENS BROTHERS

& CO., LIMITED.

RUBBER AND PAPER CABLES.
TELEGRAPH AND TELEPHONE CABLES.
FLEXIBLES.
"STANNOS" WIRES.
ENAMELLED WIRES.
JOINT BOXES.
COMPOUNDS.
TAPES.
CABLE APPLIANCES.
ACCESSORIES.
EBONITE
TELEGRAPHS.
TELEPHONES.
RAILWAY SIGNALLING.
SHIP SIGNALLING.
MINE AND POWER STATION SIGNALLING.
FIRE ALARMS.
LINE MATERIAL.
TUBULAR POLES.
LATTICE POLES.
INSULATORS.
LINE TOOLS.
FLUID CELLS.
DRY CELLS.
BATTERY CARBONS.

SIEMENS BROTHERS & CO., Limited, Woolwich, S.E.18.

ESTABLISHED 1858.
Telephone: City 6400 (7 lines).

OVER 4,000 EMPLOYEES.
Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202.
Telegrams: "SIEMENS."

THE POSTMASBURG DIAMOND FIELD.

Developments at Westend, Postmas Prospect and Makganyene Mines—The Emerald Diamonds Company's Huge Interest—The Mine on Kouwater—Waterstroomvlei's Prospects—Land Booming—Need of a Railway.

(*By a Special Commissioner of the "South African Mining and Engineering Journal."*)

Not since the days following on the preliminary exploitation of the Premier Mine, near Pretoria, have diamond mining circles in South Africa been so excited over the prospect of new and important "pipe" discoveries as at present. Seventeen years have elapsed since the Premier began to prove itself to be the largest profitable diamond mine in the world and thus to constitute a rival to the great De Beers Consolidation at Kimberley. Since then the diamond market has witnessed many vicissitudes, but thanks to close co-operation amongst the big producers in regard to control of output and sales the diamond industry was never more prosperous than it is to-day. Prices have gone up by leaps and bounds and the selling value of stones is so high at the present time that numerous ventures which were abandoned a few years ago are now being re-opened and worked at a profit. The present tremendous demand for diamonds has stimulated prospecting activity all over the country as well as encouraged people to re-open abandoned mines or pipes, fissures and washes. Fresh finds are continually being reported, but by far and away the most important discoveries of new diamond areas that have been recorded for years appear to be those made in the Postmasburg district of the Cape Colony within the past few months.

Griqua Town and Postmasburg.

Postmasburg is a small hamlet which has been established for about 30 years. It is distant approximately 40 miles from Griqua Town and lies about 125 miles practically due west of Kimberley, which is the nearest point on the railway line. There is a fairly good road straight through to Kimberley, *viâ* Schmidt's Drift on the Vaal, and a motor car bi-weekly service connects Postmasburg and Kimberley, *viâ* Griqua Town, the local Magistracy. Postmasburg is in the Hay district. It possesses a Post Office and hotel, and in view of recent activities and foreshadowed developments in the district both the Standard and National Banks have recently opened branches there. Passing through Griqua Town (Moffat's old Missionary Settlement) to Postmasburg one leaves the Laingberg Range which fringes the Great Kalahari away to the far west. The road (which has suffered somewhat through the recent floods, which have been exceptionally heavy for what is normally an arid district) courses through a flat country covered with semi-desert scrub. Here and there are small fountains bursting from the dolomitic limestone capping which overlies most of this Cape north-western area.

Topographical and Geological Features.

In the vicinity of Postmasburg the country is more hilly with the ridges and valleys lying in a roughly north and south line. The outstanding geological features of this area are (a) the dolomitic limestone covering, (b) the basal beds of the Griqualand series, and (c) the dolerite dykes which traverse the limestone. One main line of igneous intrusion with a north and south trend appears to traverse the country for many miles. The occurrences of kimberlite are all found in fairly close juxtaposition to this line of fracture. It is, in fact, a marker and it is along this line that the Emerald Diamonds, Ltd., a company now in course of flotation in Johannesburg with a capital of half-a-million sterling, has acquired rights and options over about forty farms embracing a huge tract of country along the line of the kimberlite occurrences.

Dr. Rogers, Director of the Geological Survey of the Union, in his report of the Cape Geological Survey of 1908, dealt exhaustively with the salient geological features of this region. It is not intended here to deal at any length with Dr. Rogers's report, but as to the outstanding economic features of Postmasburg geology it may be stated that the existence of true kimberlite pipes in this region has been known of for several years. There is, for instance, the old Peiser mine situated 18 miles to the south-east of Postmasburg. Some years ago this property was purchased by De Beers. It was closed down by the great Kimberley organisation and has been idle ever since. Before the conclusion of the Great War, too, the Makganyene mine was opened up 17 miles to the north-west of Postmasburg.

Recent Discoveries.

Only, however, within the past few months have the Westend mine and the two Postmas Prospect mines on the Postmasburg commonage and the mines on Kouwater, Waterstroomvlei and other properties been discovered.

Westend and Postmas Prospect.

The two propositions nearest to Postmasburg at present being exploited are the Westend and Postmas Prospect properties. The former was found about the middle of last year, and a syndicate, in which Sir Abe Bailey and Sir George Albu were interested, was formed to work it. Latterly Sir George Albu's interest has, so it is understood, been taken over, and Sir Abe Bailey controls the property. The existence of a true kimberlite pipe or mine of fair size has been established on the Westend claims. Small test washings have given as much as 38 carats per 100 loads, and the company is now awaiting the arrival of a gear which will admit of extensive test washing.

On the Postmasburg property, which practically adjoins Westend, two mines—one of which is of very considerable size—have been discovered and diamonds have been recovered therefrom. The quality of the stones found both at Westend and Postmas Prospect is first class. It is indeed a characteristic of this whole region that the diamonds are of exceptional brilliance and purity, and at to-day's prices are easily worth an average of £10 per carat.

The Emerald—Victory Diamonds' Interests.

Whilst these two ventures have attracted a lot of attention of late both in Johannesburg and the Cape Colony, it is safe to say that the Emerald Diamonds, Ltd., a company which is being formed in Johannesburg to exploit an enormous tract of territory in this district, will by reason of its magnitude and ambitious programme, engage even more notice. The Emerald Diamonds will have a capital of half-a-million and a working capital of not less than a quarter-of-a-million sterling. The company is closely associated with Victory Diamonds, Ltd., a concern which has already acquired extensive and highly promising diamond-bearing areas over a huge concession in the Gordonia district and also at Rietfontein (Kuruman district) and Paardeberg West, near Kimberley.

For months past the promoters of Emerald Diamonds have been quietly acquiring options over farms and consolidating the interests of small syndicates in the most attractive portions of this new diamond field. These efforts have now been rewarded by the possession of mineral rights with options to purchase at very reasonable figures over 40 farms extending along the belts of hematite and kimberlite breccias from near Griqua Town to more than 30 miles north-north-east of Postmasburg. On about 30 of these farms the existence of diamondiferous indications has been established up to date. On several of them highly important discoveries have already been made. Prospecting operations have been in progress on these farms since June, 1919, and are now commencing on a very large scale. Other important finds are confidently anticipated.

As already stated, the Makganyene mine lies about 17 miles N.N.W. of Postmasburg. This mine, which has an area of about 300 claims, has yielded fine quality diamonds and has recently been equipped with a new plant of about 150 loads per day capacity. The mine is now being stripped and it is estimated that washing will commence at the new gear in about two weeks' time. It is in the vicinity of this mine that the Emerald Diamonds Company has made two important discoveries.

The Mine on Kouwater.

On the farm Kouwater, which is situated about three miles N.N.E. of the Makganyene mine, a kimberlite pipe which promises to be of very extensive dimensions is being exploited. The pipe here appears to have been discovered by surface indications, and there can be no question as to its potential size or importance. On arrival at the Kouwater workings one is immediately impressed by an extensive and sharply defined escarpment of clay ironstone which flanks the side of the hill on the western section of the farm. This escarpment has a horseshoe trend and all the appearances of a crater mouth. There is every reason for regarding it as the western wall of the mine. East of this escarpment the ground falls sharply away, and in a small valley immediately below the mural escarpment a large number of prospecting holes have been sunk, in one or two places to a depth of 40 feet. These pits have proved the existence of a true kimberlite breccia rich in mica and garnets and all the mineral constituents accessory to diamondiferous pipes. The ground contains an admixture of calcareous matter down to the depth already exploited, but it is of " lively " appearance, resembling a plum pudding in the richness and variety of its mineral enclosures. A 4 ft. 6 in. pan is now in course of erection on Kouwater. About 40 loads of yellow ground have been accumulated for treatment, and washing is expected to commence in a few days' time.

Makganyene No. 2.

To the east of Kouwater lies Makganyene No. 2. On this farm preliminary prospecting operations have commenced and three diamonds have been recovered. It is quite possible that the kimberlite occurrence on Kouwater extends to Makganyene No. 2 and that subsequent developments will prove the existence of one large pipe or of two or more pipes connected by fissuring on these properties.

Other Promising Areas.

To the north of Kouwater and Makganyene No. 2 the Emerald Diamonds Company is preparing to prospect the farm Lamoteng and to exploit the farm Venn by means of Halford drills. On both these farms there are highly promising surface indications of pipes. East of this again are Taagkwaning and A 31, and prospecting is about to commence on these farms too. On all these properties excellent indications have been observed, and there are strong presumptive evidences of the existence of true kimberlite pipes on them. In regard to the farm A 31, it may be stated that emeralds have been found there, and this discovery has given rise to the name of the company.

Waterstroomvlei.

About twelve miles to the south of Postmasburg the Emerald Diamonds Company is engaged in prospecting the farm Waterstroomvlei, on which there is evidence of a line of fissuring traversing the farm in a south-east by north-west direction. Some months ago a shaft was sunk on this property to a depth of about 40 feet on a kimberlite occurrence, which on washing gave a heavy deposit particularly rich in grossularite garnets and olivine and "carbons," and which yielded two small diamonds. Two tunnels driven from this shaft were driven in without encountering any walls. There is a considerable quantity of ground lying around this shaft, and it is proposed to wash this almost immediately. A washing plant will, in fact, be erected there in the immediate future.

It will be evident from the foregoing that the possibilities of the Emerald Diamonds properties are very great indeed, and the extensive prospecting of about forty farms secured by this company will be watched with the keenest interest throughout the Union. Particular interest attaches to the preliminary washing test of ground from Kouwater, but in connection with the ground accumulated for testing it should be borne in mind that this has been derived from two narrow shafts and is mixed with overburden and lime.

Other Minerals.

In addition to the gem deposits already proved to exist on the properties of the Emerald Diamonds Company the ground acquired has other attractive mineral prospects. Several of the farms are traversed by a belt of high-grade hematite. Asbestos and cassiterite have also been discovered. On the farm Blaauwboskuil, which has been acquired by the Emerald Diamonds Company, occurrences of argentiferous galena and of tin have been found and will be opened up in the immediate future.

Postmasburg Booming.

As a natural consequence of all these highly important developments, the ordinarily sleepy hamlet of Postmasburg has suddenly achieved a marked activity and popularity. Prospectors and speculators are fairly flocking to the district and motor cars are continually dashing through its small streets. Ground in the township which was easily obtainable at £100 per two erven has recently been sold at £700 to £1,000. Within the past few days extensive pegging has taken place on the commonage and already there is talk of a branch railway to this remote but exceedingly attractive district. Time alone will prove the exact mineral value of the region, but all the indications up to the present point to the likelihood of tremendous developments taking place there within the next year or so.

The "Kelco" Patent Shovel Point.
To Gold, Copper, Tin and Base Metal Mining Companies, P.W.D., Railways, Municipalities, Quarry Owners, Contractors, Etc., Etc.
CUT YOUR SHOVEL BILL IN HALF.
" BRINGS DOWN WORKING COSTS."
Full particulars from the SOLE AGENTS FOR SOUTH AFRICA.
KELLY & COY., Mining Material Merchants and Contractors,
42, WINCHESTER HOUSE, JOHANNESBURG.
Application for Sub Agencies outside the Witwatersrand invited.

TOOL-MAKER.
Press Tools, Jigs, Instruments—experimental and fitting. 17 years in trade (Micrometer Limits). 4½ years Toolroom Foreman. At present Tool and Equipment Engineer in Telegraph Instrument Works in North London. Will take any job with living wage and good prospects. Age 32, married. Write, F.S., c/o S.A. Mining Journal, Box 963, Johannesburg.

TRADE MARK
MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making BEARINGS smooth as glass and keeping them COOL under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg, Bulawayo and Salisbury.

THE YEAR WITH THE BARNATO GROUP.

Points from the Annual Reports of the Chief "J.C.I." Subsidiaries.

Of the New State Areas in 1919 the consulting engineer, Mr. W. L. White, writes: Shaft sinking was restarted with the permanent equipment at the south shaft in February and at the north shaft in April, and has continued throughout the year, with the exception of a period from 16th June to 9th July, when the sinkers and drivers were on strike. The shaft sinking accomplished was as follows: North shaft, 920 feet, total depth 1,065 feet; south shaft, 1,338 feet, total depth 1,441 feet. The railway siding from Springs Station to the mine, referred to in last year's report, was opened for traffic as far as the south shaft early in December, and the remainder of the line has since been completed. In April Mr. James Richardson was appointed manager in place of Mr. M. J. Turner, of the Government Gold Mining Areas, who was acting temporarily.

Of the New Primrose in 1919, Mr. W. L. White writes: Notwithstanding an increase in the working costs, the company continued to make a monthly profit throughout the year. There was an increase in the yield per ton due in part to the good values obtained in the May Deep and May Consolidated sections, and also to the increased amount of underground sorting which has been carried out during the year. No development remains to be done on the South Reef, but fair progress was made in developing the unexplored areas of the Main Reef Leader, which, in spite of its general patchy nature, has shown considerable payable areas and fully warrants a continuation of the policy of completely opening up this reef. There remains an area of about 30 claims to be developed. The ore reserves, which have been recalculated, are now estimated at 45,400 stoping tons, having an assay value of 6·4 dwts. over 53 inches.

Of the Langlaagte Estate in 1919, Mr. W. L. White writes: The quantity of ore crushed during the year was 475,480 tons, which was 58,210 tons less than that for the preceding year. The chief reason for this falling off in the tonnage milled was undoubtedly the shortage of native labour. The average number of natives working underground for the year was 2,435 as against 2,673 for the previous year. There is the further fact that the compressor plant on this property has been of a very limited nature, and as a consequence the mine is dependent on a large number of hammer boys to a greater extent than most mines. Additional compressor plant amounting to a total of 43 drills is now being installed. Working costs at 21·172s. per ton were 2·101s. per ton higher than in the previous year, owing largely to the smaller tonnage crushed and in addition there was the increased cost of labour and materials and the contributions under the new Miners' Phthisis Act. With a view to placing the mine in a better state of development, shaft sinking is now being pushed forward as rapidly as possible. Although not so high as during the previous year, the development results have been satisfactory. The ore reserves have been recalculated and are estimated at 1,002,400 tons of an average value of 6·5 dwts. over a stoping width of 52 inches.

Of the Ginsberg in 1919, Mr. W. L. White writes: Owing to the payable ore reserves having become so small in amount that it was no longer possible to keep the mill supplied, mining operations ceased at the Ginsberg property in June, 1919. During the first six months of the year the quantity of ore crushed amounted to 61,120 tons of a value of 5·170 dwts. The small amount of ore remaining in the mine was sold to the East Rand Proprietary Mines, Ltd. There was a certain amount of untreated accumulated slime on the property, and the cyanide works have been kept running to deal with these accumulations. It is expected that this treatment will be completed within the next few months. The surplus stores have been disposed of to the other mines of the group and the dismantling and sale of the plant is being carried out.

Of the Consolidated Langlaagte Mines in 1919, Mr. W. L. White writes: The tonnage milled during the year showed an increase of 4,500 tons compared with the previous year. Working costs were about 1s. 6d. per ton higher than in 1918, principally owing to increases in the cost of stores, to heavy contributions under the Miners' Phthisis Act of 1919, and to higher War bonuses paid to employees. No sinking was done in the east shaft, southern section, but the accumulations from the floods of 1918 have been cleaned out and sinking operations will be resumed almost immediately. The west shaft was sunk 69 feet, making the total depth of the shaft 3,821 feet from the surface. The moment of development done during the year was 2,431 feet more than that accomplished in the previous year. The South Reef shows signs of becoming poorer in depth, but some good values were met with on the Main Reef Leader. The ore reserves have been recalculated and are now estimated at 2,090,300 stoping tons, having an average assay value of 6·25 dwts. over a stoping width of 55 inches.

Regarding the Witwatersrand in 1919, Mr. W. L. White writes: This mine has suffered very severely owing to shortage of native labour, the percentage of the underground complement at the end of the year being only 57·19. The tonnage crushed was 31,600 less than in 1918, and the working costs show an increase of 2s. 4d. per ton over the previous year, due principally to the increased cost of labour and material, and the additional burdens of War bonuses and contributions in respect of miners' phthisis. The southern incline shaft was sunk 335 feet, reaching the 28th station, the total depth of the shaft being 3,317 feet at the end of the year. Development in the lower part of the mine has been somewhat disappointing. The ore reserves have been recalculated and are now estimated at 1,142,500 tons of an average value of 5·9 dwts. over a stoping width of 72 inches.

BITUMEN
SOLUTION
(COURTNEY'S)

A perfect rust-proof coating for smoke stacks, tanks, pipe lines, iron roofs, etc.

¶ Much superior to paint and costs less. Does not crack, blister or peel off, and is quite unaffected by heat, cold, moisture or acid fumes; possesses great tenacity and elasticity, and is absolutely non-porous.

A descriptive folder showing other advantages, gladly furnished on request.

GEORGE ANGUS & CO., LTD.
(Incorporated in England.)
Box 3942. JOHANNESBURG. 'Phone 1031.

BEING made a little different—a little better than others—"Bartleite" Jointing and "Strebor" Packings invariably last longer and give infinitely better results at lower ultimate costs.

"Bartleite" is unaffected by acids, oils, hot liquids, etc., it is exceedingly tough, and pressure will not expand it. Big stocks are carried in thicknesses of 1/13, 1/16 and 1/8 in.

"Strebor" is the finest packing of its class made; it retains its lubricative qualities to the last, and will not set hard in the gland, neither will it char. Recommended for water pressure up to 700lb,. "Strebor" is stocked in all sizes from ¼ inch to 2 inches.

J. W. Roberts, Ltd.—the makers of "Bartleite" and "Strebor"—are makers, also, of high grade Hydraulic Packings, Grease, Mica Grease, Packing Asbestos, Asbestos Millboard Sheets, etc.

Bartles are the sole South African Agents. Every attention will be promptly given to your inquiries and orders.

BARTLEITE JOINTING & STREBOR PACKINGS

SOUTH AFRICAN AGENTS:

BARTLE & Co., Ltd., JOHANNESBURG

Loveday House, Phone 3553, Box 2466, Wires: "Faggot."

THE POSITION OF THE GELDENHUIS DEEP.

The results of the year's working at the Geldenhuis Deep in 1919, as compared with those of the preceding two years, are as follow:—Tons milled, 1917 648,100, 1918 591,100, 1919 560,100; working costs per ton, 1917 20s. 10d., 1918 23s. 1·5d., 1919 24s.; revenue per ton at standard price of gold, 1917 23s. 10d., 1918 23s. 2d., 1919 23s. 7d.; profit per ton at standard price of gold, 1917 3s., 1918 0·5d., 1919 loss 5d.; profit at standard price of gold, 1917 £96,704, 1918 £1,208, 1919 loss £11,435; revenue from premium on gold, 1917 nil, 1918 nil, 1919 £66,837; total profit, 1917 £96,704, 1918 £1,208, 1919 £55,402; development footage, 1917 13,866, 1918 11,520, 1919 4,735; ore reserve, tonnage, 1917 1,811,000, 1918 1,549,600, 1919 1,375,200; average value of ore reserve, 1917 5·8 dwts., 1918 5·9 dwts., 1919 5·9 dwts.; coloured labour strength (average), 1917 4,351, 1918 4,146, 1919 3,981. Mr. E. H. Clifford, the consuling engineer, writes: At the standard price of gold, there would have been a loss of £11,435 on the year's working, although owing to the premium obtained this was converted into a profit of £55,402. As anticipated, there was a small improvement in the yield per ton, but this was nullified by the additional cost of working and by a further decline in the native labour strength and tonnage milled. Practically every item of expenditure has increased and there is reason to expect a further increase during the current year. In the early part of the year the position became so critical that development operations were curtailed, which had an important effect in minimising the losses at that time. Since the advent of the gold premium, however, the appropriations for development purposes have been increased. Unfortunately, so far there is little reason for believing that this extra expenditure will bring about a material improvement in the general position. The ore reserve at 31st December, 1919, was as follows: Main Reef, 504,000 tons, value 5·4 dwts.; Main Reef Leader, 201,800 tons, value 6·2 dwts.; South Reef, 458,300 tons, value 6·4 dwts.; Composite Reef, 211,100 tons, value 6·0 dwts.; totals, 1,375,200 tons, value 5·9 dwts. There is no hope of increasing the grade of the ore mined; in fact, it is probable that this will decline, and since working costs are almost certain to advance, the future of the mine depends almost entirely on the magnitude and duration of the gold premium.

MANAGER'S REPORT.

Inter alia, the manager writes: Considering the mine in two sections, as far as development is concerned all ends which show a reasonable likelihood of opening up payable ore in the near future are being worked. In the eastern section there is a quantity of low-grade tonnage still to be developed, but it will only prove profitable under very favourable working conditions. On the western section there are probably some small scattered areas of good grade ore still left, but the development costs to reach these blocks will be considerable, so that the realisable profit will be small. Advantage is being taken of the increased value of gold to re-investigate the possibilities of certain old blocks and workings which had been stopped, but the tonnage of this description, from which a profit is probably, is smaller than might be expected at first sight, for the following reasons: (1) Working costs are rising steadily; (2) stope faces are not finally abandoned until the values fall well below the pay limit; (3) the expense of re-opening old workings and ensuring ventilation and water supply is considerable.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

FEBRUARY DIAMOND RETURNS FROM THE TRANSVAAL DIGGINGS.

THE returns from the various alluvial diamond diggings in the South-Western Transvaal for the month of February amounted to 7,860 carats value £115,347, as compared with 8,675 carats value £140,771 in January and 7,233¼ carats value £125,203 in December. There were 43 different areas mentioned in the returns, which are officially given as under:

Name and No. of Farm.	Value.
Blesbokfontein 63	£15,051
Bloemhof 130	4,614
Bloemheuvel 171	241
Biesjeslaagte 23	17
Christiana	757
Doornbult 93	1,468
Diamantdoorns 131	6
Driekoppies	9
Dieveuraai 245	2,016
Eerstebegin 290	649
Eastleigh 593	631
Goudplaats 318	470
Grootdoorns 133	228
Graspan 86	53
Holloway's Rust 142	1,311
Italie 328	1,396
Kareepan 137	6,221
Kafferpan 65	314
Klipkuil 104	881
Katdoornkraal 163	10
Kromellenboog 108	94
Koppiesvlei 54	54
Kameelkuil 142	23,783
London 33	4,230
Leeuwfontein 143	3,377
Mooifontein 128	1,030
Middelbosch 326	2
Maroetjesfontein 120	18
Mimosa 75	330
Olivenfontein 376	44
Plessisdam 121	3,609
Rondevlei 129	13
Rietput 120	49
Rietkuil 138	17,635
Schweizer-Reneke	5,059
Syfergat 150	3,169
Schaapboschdraai	100
Vechtvallei 329	135
Vuurfontein 61	45
Welgevonden 52	35
Welverdene	11
Zevenfontein 165	3,458
Zwartlaagte 68	12,294
Total	£115,347

OTHER TRANSVAAL AREAS.

Bynestpoort 520	£7,150
Kameelfontein 106	4,134
Roodeplaats 314	206
Reitfontein 501	200
Kaalfontein 402	185
Rooikoppies 209	16
Total	£11,891

PRIVATE ESTATES.

River View Diamond Syndicate	143½	3,127
Pniel Estate	111½	2,053
New Vaal River D. & E. Syndicate	526½	8,386

PUBLIC DIGGINGS IN THE CAPE PROVINCE.

The output of diamonds from the public diggings in the Cape Province during the month of February was as under (the number of claimholders in Barkly West district being given as 2,092):

BARKLY WEST DISTRICT (2,836 carats, value £46,641 8s.)

	Carats.	Value.
Bad Hope	16¾	£141
Delport's Hope	68¾	1,220
Eland's Drift	1½	24
Gong Gong	227½	3,198
Forlorn Hope	5½	46
Good Hope	301¼	3,513
Harrisdale	188¼	3,269
Hebron	267	5,240
Jonas Kopje	3¼	38
Holpan	88	1,640
Kareepan	179¾	3,090
Keiskama	8	120
Klipdam	202¼	3,068
Klipdrift	212½	2,836
Last Hope	74¼	1,025
Longlands	138¾	1,817
Niekerk's Rush	47½	1,343
Rickett's Prospect	35¾	843
Scholtz's Prospect	76	1,531
Snyder's Rush	93	1,657
Van Zoelen's Laagte	29	709
Waldeck's Plant	285¼	4,844
Ward's Hope	7¾	71
Winter's Rush	278½	5,321

HERBERT DISTRICT (394½ carats, value £5,830).

Brypaal	76½	1,045
Davisdrift	24¼	318
Mosesberg	213½	3,412
Platdrift	10	103
Schmidt's Drift	68¾	920
Sevonelles	1½	30

KIMBERLEY DISTRICT (202 carats, value £4,239 10s.)

Robinson's Kopje	74½	2,036
Wedberg	127½	2,203

TAUNGS DISTRICT (941½ carats, value £19,222 5s.)

Home Rule	877	18,778
Killarney	64½	443

The Sakalava Madagascar Proprietary Oilfields, Ltd.

(REGISTERED IN THE ORANGE FREE STATE.)

Notice to Shareholders.

The following cable has been received by the Directors of the Sakalava Madagascar Proprietary Oilfields, Ltd., from Mr. W. P. Fisher, the Deputy-Chairman of the Company, who, together with Mr. Paul Dreyfus, a Director of the Company, visited England with the intention of bringing the Sakalava Oilfields, Ltd., interests in Madagascar to the notice of European Financiers, with the object of obtaining sufficient capital to develop the very large area of Land held by the Sakalava Company in Madagascar :—

"We have concluded the following provisional agreement : Begins : The Royal Dutch Shell Group will form a French Company with an authorised Capital of £1,000,000. 425,000 shares will be issued to be divided into 150,000 cumulative Preference Shares and 275,000 Ordinary Shares.

"Of the Preference Shares Group to receive 100,000, Sakalava 50,000 against cash at par. This Preference Capital will be issued as and when money for the development of the property is needed.

"Of the Ordinary Shares Vendors receive 125,000 shares in consideration of bringing Claims, Machinery and Plant, and all other property they possess, except cash.

"Further, it is proposed to allot as a bonus for putting up the money £100,000 Ordinary Shares to the Group and 50,000 to Sakalava.

"After this issue there remains 575 000 Ordinary Shares in reserve for all further issues. Of this Capital, Group have the option of subscribing 5/6ths, Sakalava 1/6th. at par. In case of Capital being increased beyond 1,000,000 condition of further issue to be determined by Board of Directors. Group shall have management and majority Board of Directors. Sakalava will have the right to appoint two Directors which must be approved by Group.

"Group will receive £1,000 per annum for management. Profit will be divided as follows. After deducting a reasonable amount for depreciation—firstly 4 per cent. to Preference Shareholders. 2½ per cent. of the remainder to Group as additional management fees.

"Further, 3 per cent. to Preference Shares; then 7 per cent. to Ordinary Shareholders. Balance to be divided amongst all the shares *pari passu*. All shares must be pooled including Reserve Capital—duration of pool one year after authorised Capital 1,000,000 has been issued—but we have the right to exclude all or any portion of our shares from sale. In case of liquidation Company Preference Shareholders must receive the first 100 per cent. with all accrued dividend

"The New Company will be formed after investigation of our claims, titles.

"We have arrived at this agreement after protracted and difficult negotiations. This Group possesses enormous influence and we are very fortunate in getting them interested"

On receipt of this cable a Meeting of Directors was held, and a reply has been sent stating Directors will call a Meeting of Shareholders, to place the matter before them.

By Order of the Board,

E. G. COLLINS.
Secretary.

147, Stock Exchange Buildings,
P.O. Box 2089, Johannesburg.
7th April, 1920.

69996

SAKALAVA OILS: NEW FLOTATION SCHEME.

Proposed Absorption by Royal Dutch Shell Group—French Company to be Formed.

SAKALAVA (Madagascar) Proprietary Oil shares, after being altogether out of the limelight for some months past have again come into prominence and have constituted a very active market during the past few days. The reason for this is to be sought in the fact that the following cable has been received by the directors of the Sakalava (Madagascar) Proprietary Oilfields, Ltd., from Mr. W. P. Fisher, the deputy-chairman of the company, who, together with Mr. Paul Dreyfus, a director of the company, visited England with the intention of bringing the Sakalava Oilfields, Ltd., interests in Madagascar to the notice of European financiers, with the object of obtaining sufficient capital to develop the very large area of land held by the Sakalava company in Madagascar:

We have considered the following provisional agreement:—Begins: The Royal Dutch Shell Group will form a French Company with an authorised Capital of £1,000,000. 425,000 shares will be issued, to be divided into 150,000 cumulative Preference Shares and 275,000 Ordinary shares. Of the preference shares group to receive 100,000, Sakalava 50,000 against cash at par. This preference capital will be issued as and when money for the development of the property is needed. Of the ordinary shares vendors receive 125,000 shares in consideration of bringing claims, machinery and plant, and all other property they possess, except cash. Further, it is proposed to allot as a bonus for putting up the money £100,000 ordinary shares to the group and 50,000 to Sakalava. After this issue there remains 575,000 ordinary shares in reserve for all further issues. Of this capital, group have the option of subscribing five-sixths, Sakalava one-sixth, at par. In case of capital being increased beyond 1,000,000 condition of further issue to be determined by board of directors. Group shall have management and majority board of directors, Sakalava will have the right to appoint two directors which must be approved by group. Group will receive £1,000 per annum for management. Profit will be divided as follows. After deducting a reasonable amount for depreciation—firstly 4 per cent. to preference shareholders, $2\frac{1}{2}$ per cent. of the remainder to group as additional management fees. Further, 3 per cent. to preference shares; then 7 per cent. to ordinary shareholders. Balance to be divided amongst all the shares *pari passu*. All shares must be pooled, including reserve capital—duration of pool one year after authorised capital 1,000,000 has been issued—but we have the right to exclude all or any portion of our shares from sale. In case of liquidation company's preference shareholders must receive the fibst 100 per cent. with all accrued dividend. The new company will be formed after investigation of our claims, titles. We have arrived at this agreement after protracted and difficult negotiations. This group possesses enormous influence and we are very fortunate in getting them interested.

On receipt of this cable a meeting of directors was held, and a reply has been sent stating directors will call a meeting of shareholders, to place the matter before them.

PERSONAL.

Mr. W. E. Bleloch has returned to the Rand after a successful business trip to England.

* * * *

Mr. M. McCormack, Secretary of the Rand Water Board, is succeeding Mr. H. Newhouse as Manager of the Union Corporation in Johannesburg.

* * * *

Mr. James Richardson, of the New State Areas, has been appointed manager of the "Knights" mine, in succession to Mr. F. B. Lewis, who is retiring from mining.

* * * *

Mr. Carew has decided to close down the New Fortuna Mine at Barberton for a time. There is every prospect that development will be renewed, and that the mine will in due course be in full swing again. None of the plant is being dismantled. At the Worcester Mine, owing to fall of rock, operations will discontinue. This mine has been working towards a close for some time.

CHANGE OF NAME.

OSWALD FLETCHER LTD.

(Late S.C.H. Herbert Fletcher Ltd.)

AGENTS FOR:—

BRUNTONS'---MUSSELBURGH

WIRE ROPES.

MOSES EADON & SONS LTD.,

SHEFFIELD.

STEEL, TOOLS, ETC.

BOX 2534. 1 & 2 CENTRAL HOUSE.
PHONE 4620. MAIN STREET

USE

"PORPOISE"

BRAND

ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by

South African Lubricants & Chemical Works, Ltd.,

DURBAN & JOHANNESBURG.

Phone 1618, Johannesburg Branch Office.

A NEW RHODESIAN FLOTATION.

The Rezende Reef Extensions Consolidated—Capital of £200,000—Favourable Reports.

Elsewhere in this issue will be found the prospectus of the Rezende Reef Extensions Consolidated Gold Mines, Ltd. This company is being formed with a capital of £200,000, divided into 200,000 shares of £1 each, and the allocation of capital is as under: Cash for working capital, £80,000; shares to vendors and promoters, fully paid, £80,000; reserve shares, £40,000. In the event of the directors deciding to issue the reserve capital, the registered shareholders will have a free option for twelve months from date of allotment to take up the reserve shares on the following terms: 20,000 within 12 months at 25s.; 20,000 within 18 months at 30s.; *pro rata* to their holdings. The directors will give 30 days' notice of their intention to issue the reserve. 80,000 shares for working capital are now offered for subscription at par, payable as follows: 2s. 6d. per share on application, 7s. 6d. per share on allotment, 5s. per share three months after allotment, balance of 5s. per share when called upon but not before six months after the allotment of the shares. The company will proceed to allotment as soon as 60,000 shares have been subscribed out of 80,000 shares now offered. The promoters are W. R. Levin & Co., Ltd., who are also the promoters of the Victory Monarch G.M. Co., Ltd. The board of directors consists of B. A. Meintjes, G. D. Alexander, and W. R. Findlay. Four additional members will join the board as soon as allotment has been made. The property to be acquired consists of 604 claims and is situated in the wealthy area of the Penhalonga Valley, about twelve miles from Umtali, Southern Rhodesia, comprising the Kent, Caliph, Caledonian, Golden Gate, and other blocks. This wealthy valley has within its borders the famous Rezende, Kings-Daughter and The Liverpool Gold Mines, all of which adjoin or surround the property of this company.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

The prospectus states: "The reefs on the company's property are regarded as being the identical reefs that are now being worked on the Rezende, Kings-Daughter and Liverpool Mines, and are extensions of these. This is confirmed by the reports attached hereto. The Kent reef, which is an extension of the Rezende reef, has been opened up on the Kent property to the fourth level; the Kings-Daughter reef, from which £330,000 worth of gold has been extracted from the immediate outcrop, the lowest point being 100 feet from the surface, has been opened up on the Caliph property and proved to the 200 feet level. The Rezende reef enters the Caliph property about the centre of that block, which has not yet been cut. From recent development on the adjoining properties, it has been found that these reefs continue to great depths. The life of the mine is doubtless of very great duration. This is borne out by the existence of the surrounding mines, which have been working at enormous profits for a number of years and are at present the envy of all South African mine owners. This remark applies particularly to the Rezende mine. This property, unlike most concerns, does not require the initial outlays, nor will it demand any waste of money to 'try' and produce. The elements of chance are all obviated by the existing circumstances. Machinery is on the property, development to the fifth level has been done, shafts have been sunk, and the mine is all ready for earnest work. It is to enable the proposition to extend on a proper basis that this opportunity is offered to the public. On the Kent claims the whole of the fourth level, approximately about forty-seven thousand tons, is developed and ready for crushing. On the Caliph Claims the second level has about twenty-five thousand tons of payable ore developed. It will thus be seen that the ore ready for immediate treatment is about seventy-two thousand tons and the value of this ore will be found from the reports annexed. At a very conservative estimate this ore alone should show at least £70,000 profit." Accompanying the prospectus are very favourable reports by Messrs. S. R. Jameson and E. P. Willcocks.

ANSWERS TO CORRESPONDENTS

All enquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to enquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"Diamond Driller."—Too personal.

"W. V."—(1) Yes. (2) £100,000 in £1 shares.

Progress at Rhodesia Broken Hill.

The following progress report is issued by the Rhodesia Broken Hill Development Company:—"Latest advices from the mine are briefly as follows:—The main shaft has been sunk to a depth of 58 ft. and the ground below has been injected with cement to the depth of 170 ft; it is hoped to restrat sinking by the end of February and no difficulty is expected in reaching the depth of 150 ft., where a cross-cut will be made to the ore body. All ore now being smelted is derived from an open-cut. The effects of recent pumping indicate that the surrounding country is being steadily drained and that we may expect the incoming water to diminish gradually.

"A borehole, A 11, put down in block Q 25 (see plan accompanying last annual report) at an angle of 60 degrees in north-west direction struck ore at a depth of 327 ft. on the incline, which extended for 27 ft; oxidised ore high in zinc. Another borehole, A 12, encountering good ore, has been put down near block G 8 in a southerly direction; full particulars of this are not yet to hand.

"With regard to the erection of machinery, the prinicpal items in hand are the 1,000-k.w. power-station, two additional smelting furnaces similar to the two in operation, and mechanical arrangements for ore bedding, furnace charging and slag removal. Progress in this direction has not been so great as anticipated owing to delay in deliveries by manufacturers, but with the termination of the moulders' strike it is now hoped to go ahead more rapidly. When the work is completed, the output of lead should be more than doubled and operating costs appreciably reduced.

"Serious attention is now being given to the question of recovery of zinc. Two metallurgists will shortly proceed to the mine to investigate the best method of treatment."

THE WEEK IN THE SHAREMARKET.

Firmer After Easter—Followed by Setback Due to Falling Gold Premium and Bank Restrictions

The local market, after evidencing a firmer tendency after the Easter holidays, has experienced a further setback, and at the moment of writing the tone is decidedly depressing. New Modders, for instance, have been dealt in at 71s. 6d. and East Rand Props., which were in the neighbourhood of 15s. a few weeks ago, are back to 8s. 9d. The slump is due to the anxiety in regard to further falls in the gold premium and to reports of further bank restrictions on credits against overseas transactions. All the same, several of the big stocks look tempting from an investment point of view and some recovery is anticipated in the near future. Even diamond stocks seem to have caught the prevailing despondency, but Frank Smiths are in demand at 15s. 6d. Transvaal Silver options are quoted at 30s. Tins and oils are weak although Sakalavas have been a very active market at and around par, whilst the options have changed hands at 2s. 6d. and 3s. 6d. Late afternoon prices on Thursday were: Anglo-Americans, 41s. 6d.; Crown Diamonds, 12s. 3d. buyers; East Rands, 8s. 9d.; Frank Smiths, 15s. 6d. buyers; Gedulds 47s. 6d.; Modder Easts, 24s. 6d., 24s. 9d.; Modder B's, 137s. 6d.; New Modders, 71s. 6d.; Transvaal Silver options, 30s.; West Springs, 17s. 9d.—18s. 3d.; Greigs, 50s. sellers; Sakalavas, 8s. 6d.

	Wed., 31st.	Thurs., 1st.	Tues., 6th.	Wed., 7th.	Thurs., 8th.
Anglo-Americans	43 3	42 9*	43 6*	42 0*	40 0*
Apex Mines	7 3	7 0*	7 0*	7 0*	7 0*
Bantjes Consolidated	3 1*	3 3*	—	3 3	3 3
Brakpan Mines	66 0*	67 6*	68 0†	67 0†	67 0†
Breyten Collieries	—	9 0*	9 0*	—	8 0*
Brick and Potteries	—	4 6*	4 6*	4 6*	4 6*
British South Africa	—	—	19 6†	—	—
Bushveld Tins	1 6	1 7*	1 9	1 6*	1 6*
Cassel Coals	—	—	—	—	30 0*
Cinderella Cons.	6 6*	7 0†	7 3†	—	7 0†
City & Suburbans	6 6*	6 6*	—	6 6	6 3*
City Deeps	—	59 0†	59 0†	59 0†	53 0*
Clydesdale Collieries	24 0*	24 6*	24 6*	24 0*	25 0†
Consolidated Investment	—	—	—	30 0†	—
Consolidated Langlaagtes	22 0	22 6*	25 0†	25 0†	23 6†
Consolidated Main Reefs	13 6*	13 3*	13 6	13 0*	12 0
Consolidated Mines Selection	30 0*	30 0*	31 0*	31 0*	—
Coronation Freeholds	1 6	1 9	1 6*	1 9†	1 6*
Coronation Syndicates	14 0*	—	—	—	15 0†
Crown Diamonds	12 0	12 0	12 3	12 3*	12 6*
Crown Mines	—	—	73 9†	—	—
Consolidated Diamonds	—	—	—	—	43 9
Daggafontein Mines	17 9*	17 6*	18 3	17 9*	16 6
Do. Options (4 years)	0 9*	0 11*	0 9*	0 9*	0 9*
East Rand Coals	2 6*	2 4*	2 6*	—	—
East Rand Deeps	0 11*	0 10*	0 10*	0 11*	0 11*
East Rand Mining Estates	—	—	22 6†	—	—
East Rand Props.	11 0	10 6*	11 0*	11 0†	9 3
East Rand Debentures	£71	£71*	—	£71*	£71*
Ferreira Deeps	12 0†	—	—	—	—
Frank Smith Diamonds	18 0	18 0	17 6	16 3*	15 3
Geduld Props	48 0*	48 0*	49 0*	49 0*	47 6
Gleneairn Main Reefs	1 0*	1 0*	—	—	4 6*
Glencoe Collieries	5 0*	5 0*	—	—	—
Glynn's Lydenburgs	17 0†	17 0†	16 0†	—	17 0†
Government Areas	91 0*	91 6*	92 0	90 9	89 0
Hume Pipes	28 6	27 6	27 0	27 0†	27 0†
Johannesburg Board of Executors	36 0*	36 3*	36 6*	36 0*	36 0*
Jupiters	5 3*	5 0†	5 6	5 0	5 0†
Klerksdorp Props.	2 3*	2 3*	2 3*	2 3*	2 3*
Knight Centrals	5 2*	5 2*	5 1*	5 0*	5 0
Knights Deeps	9 6†	—	5 0*	—	—
Kaalfonteins	—	—	0 11†	0 6*	0 6*
Lace Props.	13 6*	13 0*	13 6*	13 0*	13 0*
Leeuwpoort Tins	26 3	27 0*	27 0	26 3*	25 9
Luipaardsvlei Estates	—	—	5 6†	—	—
Lydenburg Farms	6 9*	7 0*	7 0*	7 3	7 0*
Middelvlei Estates	1 3*	—	—	—	—
Modderfontein B.	142 6*	143 6	147 0	144 0	140 0
Modder Deeps	50 3	50 6	51 3	50 3	48 9
Modder Easts	25 9	24 0	27 0	26 0	24 9
Do. Options (3 years)	4 11	4 7*	5 9	5 3	4 0*
Do. Options (4 years)	9 6	9 9	11 0	10 4	9 3
Natal Navigation Collieries	25 0*	24 6*	25 0	—	25 0
National Bank	280 0†	280 0A	275 0†	270 0*	280 0†
New Boksburgs	2 0†	1 6*	1 6*	—	2 0†
New Eland Diamonds	70 0*	—	70 0*	70 0*	70 0*
New Era Consolidated	9 9*	10 0	9 6*	9 0*	9 0A
New Geduld Deeps	2 0*	2 6†	2 3*	—	2 1*
New Heriots	—	11 0*	—	—	—
New Kleinfonteins	—	11 0*	12 3*	11 9*	11 0
New Modderfonteins	76 9	77 6	77 3	76 0	72 6
New Primrose	—	5 0†	4 6†	—	—
New Unifieds	6 0*	6 6	6 6*	—	7 0†
Nigels	7 6*	7 6*	7 6*	9 6†	—
Nourse Mines	12 0*	12 0*	12 0*	12 6*	12 0*
New State Areas	27 0A	27 3	27 3	27 0	26 0*
Premier Preferreds	—	—	—	130 0*	—
Pretoria Cements	95 6	95 0*	95 0*	95 0	94 6†
Princess Estates	—	2 0*	—	—	—
Rand Collieries	—	3 0*	—	—	—
Rand Nucleus	—	1 6*	—	2 3†	—
Rand Selection Corporation	—	—	90 0*	—	92 0†
Randfontein Deeps	6 0*	6 0	6 3*	6 9*	7 0†
Randfontein Estates	21 3*	21 6*	23 0	21 0*	20 6
Roberts Victors	17 0*	17 6*	15 0*	17 0†	14 3*
Rooiberg Minerals	9 0	9 3*	9 3*	9 3	9 0
Roodepoort Uniteds	4 0*	—	4 0	—	5 0†
Ryan Nigels	—	3 6*	3 6*	3 3*	3 9†
Rouxville Diamonds	—	20 0	22 6	23 6A	23 6A
Shebas	3 1†	2 6*	3 0†	3 0†	2 9*
Simmer Deeps	3 0†	3 0†	3 0†	—	—
S.A. Lands	5 6*	5 6*	5 3*	5 6	5 3
Springs Mines	51 0	52 0A	52 0	50 0*	50 0
Sub Nigels	16 3	16 3	16 3*	16 3*	16 0*
Swaziland Tins	13 9*	14 6	13 9*	13 9*	13 9*
Southern Van Ryns	9 0*	—	9 0*	—	9 0*
S.A. Alkalis	20 0*	—	24 0*	21 0*	22 0
S.A. Townships	—	—	14 0	13 9*	13 6
Transvaal G.M. Estates	15 0*	—	13 0†	13 6*	13 6*
Transvaal Silvers	50 6*	51 3*	53 9	51 0	49 6A
Do. Options	32 6	34 0	34 0	31 0	30 0*
Tudors	—	—	—	1 2†	1 2†
Union 5 per cent.	£102	£101¾	£101¾*	£102	£101¾*
Van Ryn Deeps	91 6	92 0	93 0*	93 0	92 0
Village Deeps	—	—	15 0*	16 0†	15 9†
Village Main Reefs	9 6†	—	—	8 6†	8 0†
Van Dyks	3 0*	3 6	4 0	4 0	3 0*
West Rand Consolidated	—	—	3 9*	—	—
Western Rand Estates	6 3	6 3*	6 3*	7 0	7 0
Witbank Collieries	77 0†	—	—	—	—
Witwatersrands	19 0†	—	—	—	—
Witwatersrand Deeps	10 0*	—	10 0*	10 3*	10 3*
Wolhuters	6 0†	—	6 0†	5 6†	5 3
West Springs	20 0	19 10½	20 0	19 6	17 6*
Do. Options	4 3*	4 3*	4 6	4 3	3 6*
Zaaiplaats Tins	10 3	10 3*	10 6	10 6	10 4*

*Buyers. †Sellers. AOdd lots. BEx London.

Drakensberg D.M. Syndicate.

The report of the liquidator of the Drakensberg Diamond Mining and Development Syndicate, Ltd., which is confirmed by the Supreme Court at Capetown, stated that the capital of the company consisted of 25,000 shares of £1 each, of which 1,000 had been issued fully paid. The cause of the syndicate's failure was due to the exceedingly high cost of working the mineral rights owing to an entire absence of minerals, nothing of any value having been discovered during the period the company had been engaged in active mining operations.

Pure Gas for the Public.

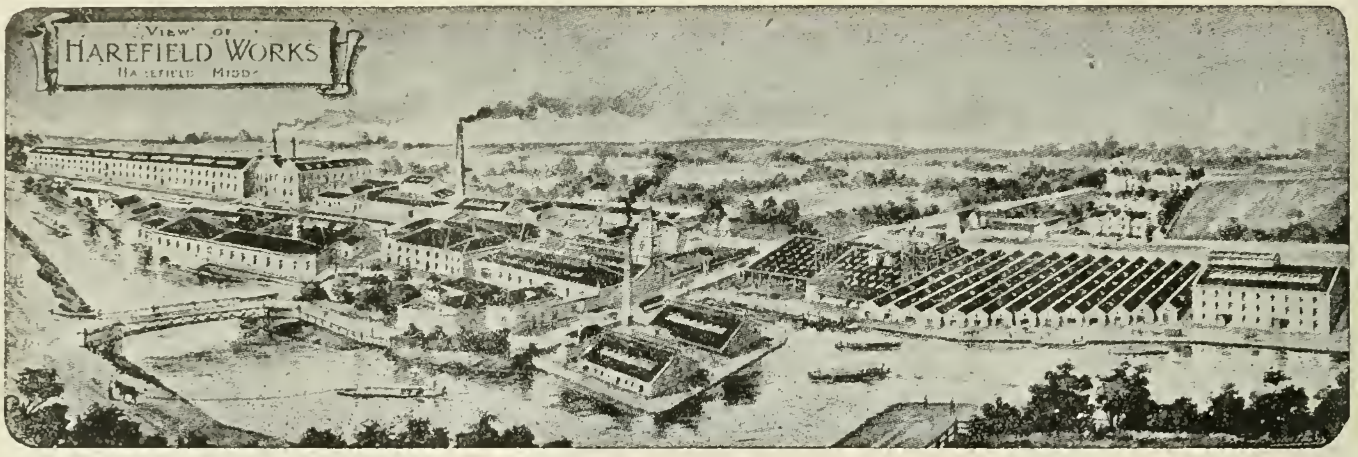
One of the most important improvements in the manufacture of coal gas has been perfected by the engineers of a gas company in London, England. They have contrived to extract from the gas all the carbon bisulphide—a substance which, when burned, had a deleterious effect on health, and also on various materials. Throughout most of the nineteenth century, chemists and engineers strove to solve this problem, but success did not come till the year 1914. The War prevented the erection of plant to carry out the process, but the way is now open for the general adoption of a method which will make a gas flame as harmless to its surroundings as a candle. The process is a catalytic one, the extraction of the impurity being effected by a substance which remains unchanged in spite of its activity. It may be added that British gas companies are now adopting the scientific principle of charging for gas on the basis, not of mere quantity, but of heat-value.

United Asbestos African Agency,
LIMITED.

Telephone No. 345, Central. 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR

BELL'S UNITED ASBESTOS CO., LTD.
(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD).



VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

" GLADIATOR " ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of " Gladiator " Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 90-lbs. It is Suitable for Stoping, Raising and Driving. Low Air Consumption. It drills 30% faster than any other drilling machine.

No Mine Manager can afford to neglect the economic merits of the - - - - **'HYDROMAX'** The Fastest Rock Drill in the World.

We have exclusively manufactured drills for thirty-seven years and the "HYDROMAX" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
CARN BREA, CORNWALL (Wm. C. Stephens, Managing Director).

Agents— **WM. HOSKEN & CO.,**
Phones 4113/9. Box 667, JOHANNESBURG. Telegrams: "HOSKEN."

SOUTH AFRICAN COAL.

The Outlook for the Industry—By-Products and Oil Shale Prospects—An Informative Paper by Mr. Cullen.

A RECENT issue of the *African World* contains an informative article by Mr. W. Cullen on "Coal Mining, By-Products and Oil Shale in South Africa." In view of the demand for South African coal in Europe and the interesting stage which has been reached by the coal by-product and oil shale industries in this country, we quote Mr. Cullen's interesting article at length, although we do not agree with him in several essential particulars. Mr. Cullen is, we think, unduly pessimistic in regard to the export trade, and what Mr. Littlejohn Phillip has to do with this branch of the business we are at a loss to understand. However, Mr. Cullen's paper makes interesting reading, and we reproduce it herewith.

Few countries have been so richly endowed with coal as South Africa. Without it we should have had neither a gold mining industry nor our excellent system of railway transportation. It is simply futile to make any estimate of the amount hidden in the bowels of the earth. Sir Robert Kotze estimated the area some years ago at 5,000 square miles, and other people have calculated the tonnage somewhere between 30,000 and 60,000 million; but amounts of this magnitude convey nothing to us. The truth is that even the most competent expert coal man can only form a very hazy idea of the coal which is hidden—fortunately as far as the Transvaal and Orange Free State are concerned—not in the bowels of the earth, but comparatively near the surface. Although the gold mining industry may last for another thirty years, coal mining at its present rate of production will certainly last at least 300. I shall assert also at once that nowhere in the whole world is coal mining carried out in such a wasteful manner as in South Africa, but in saying this I am only repeating what has been said over and over again by people more competent than I.

In some previous notes I had something to say about the coal by-products business. I stated then, and I repeat now, that there is far too much wild talk on this topic, and this is my excuse for discussing it out of its chronological order, for surely coal itself should be considered first, then the by-products.

What are these by-products? They are far too numerous to mention here, but as far as South Africa is concerned they are the following:—Gas, ammonia, tar, oil, pitch, coke. Through complete gassification of coal a low calorific gas which may be used for steam-raising, or for gas-engines—in other words, for power production—and ammonia are produced. This is what is done by Natal Ammonium. Their entire revenue comes from the sale of ammonia in the form of sulphate; but the gas, except that part of it which is used for power purposes, goes entirely to waste. Of course, if there were any demands for power in the immediate neighbourhood, say the electrification of the railways, it would be a different matter; but very little ammonia is used for fertilising purposes in South Africa. Practically all that is produced is exported to Mauritius and elsewhere, and without the very high prices which ruled during the War, and which cannot last much longer, I question very much if the proposition could possibly be an economic one. I think myself that the War saved the situation.

But then one may say there is an unlimited world-demand for sulphate of ammonia, particularly in the East. Well, there is in a way, but at a price; and, knowing the conditions of this market pretty well, I say that a by-product industry built up on the revenue from the sale of ammonia alone is bound to fail.

So much for complete gassification; but what about the other processes, viz., the distillation of coal, either in coke-ovens or gas retorts? This would give us illuminating gas, tar, and ammonia, with coke as a residue. From the tar we could get thousands of chemical products, but South Africa is only concerned with tar for the roads, or, if the tar is distilled, for the oil; then there will be pitch as a residue, which has no particular value. But the major by-product, after all, is the coke, and until an iron industry is established I cannot for the life of me see what one can do with it. In my opinion, therefore, it is quite premature to speak of the by-product industry, unless one means thereby the complete gassification of the coal, with recovery of ammonia, and the consequent production of a low calorific gas which could be used for the production of cheap power, which in turn could serve to electrify the railways,

A company has recently been floated to make carbide on the spot, from the Ballengiech Colliery Company's coal, but though I wish this venture every success I am afraid it has a lot of practical difficulties to overcome.

Now, I think it will be in order if some official figures are placed on record, and I desire to state that they are taken from Sir William Hoy's report, dated March 31, 1919, and other official publications, but naturally I do not wish to make a Government official responsible for any of the conclusions, which are my own.

The following are the figures of coal production from 1914:—

	Cape.	Transvaal.	O.F.S.	Natal.	Total.
1914	51,154	4,999,899	690,000	2,514,945	8,256,227
1915	45,811	5,092,818	710,119	2,226,402	8,117,200
1916	42,074	5,963,814	738,536	2,979,004	9,723,428
1916-1917 ...	34,372	6,100,857	759,682	3,013,396	9,908,307
1917-1918 ...	6,859	6,587,822	825,031	2,743,673	10,163,385
1918-1919 ...	4,051	6,305,388	816,662	2,510,837	9,636,938

The Cape Colony figures call for no comment, as coal mining there is dying a natural and inevitable death; and, in spite of alleged fresh discoveries, I know of nothing which justifies any hope of perpetuation.

In connection with the Transvaal figures it will be noted that, with the exception of last year, there has been a steady increase. The greater part of the shortfall for the last year is accounted for by the fact that from Table Bay alone during 1918-19 there were 160,000 tons less of Transvaal coal bunkered than in the previous year. Moreover, as will be seen presently, the bunkering trade from Delagoa had a serious setback.

The Orange Free State figures also show steady progression, except for the last year. Quite three-fourths of the total is contributed by two collieries, the Vereeniging Estates and the Clydesdale Colliery, and most of the output of the former is taken by the Victoria Falls Power Co. for its station on the banks of the Vaal. I am of the opinion that the Orange Free State's total will not alter materially for some time.

Coming now to the Natal figures, it will be noted that the totals fluctuate a good deal, but this is entirely due to the uncertainties of the shipping. I am of opinion that the mean figure of 2,500,000 or thereabouts will show a steady advance.

As bearing on what I have just stated, the following figures of export through Durban are worth noting:—

	Bunkered.	Exported Oversea.	Total.
1914	1,173,853	207,033	1,380,886
1915	930,687	219,788	1,150,475
1916	1,519,182	165,167	1,684,349
1917 (Jan. to March)	401,374	14,979	416,353
1917-18	1,211,024	261,930	1,472,954
1918-19	608,273	704,474	1,312,747

If one can bring to mind what happened during the War, the extraordinary fluctuations in these figures are readily explained. However, to show the very great difference between Durban and Delagoa Bay the following figures from the latter are given:—

	Bunkered.	Exported Oversea.	Total.
1914	217,566	361,853	579,419
1915	134,265	324,731	458,996
1916	345,912	392,446	738,358
1917 (Jan. to March)...	99,196	95,039	194,235
1917-18...	426,660	447,967	874,627
1918-19...	251,127	589,433	840,560

The totals of the last column are very eloquent, and though they are a long way behind those of Durban, and are likely to remain so, there is a look of permanency about them. However, there is one great point of difference between the Transvaal and the Natal coal trade, and it is this: that, whereas five-sixths of the Transvaal production is consumed within the Province, my impression is that from now onwards, owing to industrial expansion, the internal consumption for both Provinces will gradually increase.

I would fain give in detail the export tonnages to the various world's markets, but the following are the principal through the port of Durban for the year 1918-1919:—

Aden	195,000
Port Sudan	38,000
Suez	61,000
Ceylon	102,000
Argentine	67,717
Uruguay	38,000
East Coast Ports...	32,000

The great point is: Can South Africa keep this business, or will it expand? My own opinion is that it will keep it, but I don't see the remotest possibility of any great expansion. The transportation system—in other words, the railway—is the bottle neck, and it is quite impossible to force much more through this for a long time. The lines are working to their maximum, many grades have still to be improved;

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

there is a shortage of trucks of engines, and even of experienced men now that eight hours a day is in operation. It will take years to overcome all these difficulties. Meanwhile, the internal traffic is increasing all the time, and although Mr. Littlejohn Phillips's proposals may help matters, it cannot perform the function of an Aladdin lamp. I should like to think otherwise, but I simply cannot do so, and yet the f.o.b. price of South African coal is the lowest in the world to-day. The following indicates this clearly :—

	Price per ton of 2,240 lbs.	
Durban	35/-	37/6
Madeira	117/6	
St. Vincent	117/6	
Sierra Leone	121/-	
Port Said	125/-	
Malta	145/-	

Only yesterday I was speaking to a sea captain, who has been all over the world during the past five years. I asked him his opinion of the steaming qualities of Natal coal, and he stated that, with the exception of Welsh, it was as good as one got anywhere to-day. When in the Transvaal and moving among mining men, I could not fail to be struck by the feverish activity of some of the groups with regard to coal. They are evidently looking a long way ahead, and in this respect they are wise, for no less an authority than General Smuts stated in public only the other day that coal is the thing of the future in South African mining; and when one takes a world-view of the situation he is undoubtedly correct. At a subsequent date I shall have something to say on the South African railways, but meantime I do not think it would be unwise of me to prophesy that eight or ten years hence there will be double lines both to Delagoa Bay and Durban, the increased coal traffic necessitating this of itself. I might have stated earlier that the total coal production in South Africa in the year 1905 was only 4,200,000 tons. In 1917-18 it topped 10,000,000 tons.

One hears rumours of new collieries being started up. and this has actually been the case both at Vryheid and Breyton; but I sincerely trust that for the time being this has stopped. South Africa has plenty of collieries at present in operation to supply another 5,000,000 tons a year without much effort, for at least one-half of them are still having a very thin time of it. There can be little hope for those until they get their outputs increased, and there are certainly no fortunes to be made out of coal. More, the risks of failure are just as great as with gold. Breyton Collieries, which did so well for a time, is now in a bad way. An adjoining one, Spitskop, has had to close down altogether. Anglo-French have transferred their interests to Sir Abe Bailey, because they could make no money out of it, and Vereeniging Estates has only paid one dividend, and that many years ago, and I might go on in this strain indefinitely

There is a great talk out here about profiteering, but certainly the South African coal industry cannot be charged with taking advantage of the times. I take the following figures from the Official Year Book :—

AVERAGE PIT-MOUTH PRICE OF COAL FOR THE UNION.

	Cape.	Natal.	Transvaal.	O.F.S.
1911	11 7	5 5	4 8	5 8
1912	11 1	5 7	4 5	5 5
1913	11 6	6 2	4 5	5 6
1914	11 7	6 11	4 5	5 6
1915	11 4	6 9	4 5	5 2
1916	11 6	7 5	4 6	5 3
1917	14 4	10 2	4 9	5 2

Natal prices are always the highest, and will remain so, because of the following facts :—(1) The labour is not so efficient; most of the labourers are coolies, who cannot hold a candle to the kafir. (2) Mining is carried out at much greater depths than in the Transvaal and Orange Free State. (3) Many of the mines are gassy, and this necessitates the taking of certain precautions, which add to the cost.

I believe that for the current year the pit's mouth price of Transvaal coal is in the neighbourhood of 5s. 6d., probably the lowest price in the world, with the possible exception of a few Indian collieries. It certainly would be interesting to set against these figures the corresponding ones for other countries in the world, but such a comparison would be quite useless, as prices since the War have gone sky high. In Great Britain the pit's mouth price is in the neighbourhood of 21s., in America it is just a little less, in Germany it is much higher, and these are the three countries which really count, as they are responsible for about 90 per cent. of the world's production. It will therefore be seen what magnificent prospects South African coal has. South African coal mining cannot be killed by any conceivable set of circumstances.

It would not do to conclude these notes without a reference to oil shales. It will be remembered that the Union Government invited Mr. Cunningham Craig, the well-known oil expert, to visit South Africa, in order to report on the possibility of discovering oil in the Union. He held out no hopes, but thought favourably of the oil shales of the Wakkerstroom district. Trial distillations gave very fine results, but little beyond prospecting has been done since. The African Oil Corporation has, however, been floated, and within the past fortnight the shares have been quoted in the Johannesburg Exchange, and seem to be changing hands freely. The following xtract from the Johannesburg "Star" of December 31 is no doubt inspired, but gives some useful information :—

MINES DEPT. EXAMS.—Recent Results.

Managers—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January, February, March, 1920, we secured 13 out of 19 Certificates in S.A.

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

"The oil shale beds in the Wakkerstroom district appear to be more favourably conditioned as regards thickness, average yield of crude oil, ammonium, sulphate, etc., and general working and transport facilities, than those of other known districts. A good quantity of coal over a working thickness, plenty of timber for mining purposes, permanent streams of water (all necessary adjuncts making for working conditions almost ideal, and most economical) are found here. The shale beds have been found running through the farms Morgenzon, No. 163, Googeloef 279, Kromhoek 76, Virginia 371, and Geluk 230, and samples taken have yielded as high as 60 gallons per ton. The last-mentioned property, Geluk No. 230, immediately adjoining the farm Virginia, has been floated into a company with a view to carrying out the necessary prospections, and exploratory work, to prove the richness of the seams thereon, of which it is reported there are four. The property would appear to have the advantage of proximity to the railways, which should make for cheaper working, and those who are competent to judge of the value of this property hold a very high opinion of its prospects, if intelligently prospected and worked. It would appear that the shale beds on this farm are a continuation of those found on the farms Kromhoek, and Virginia adjoining, upon which the main seam is of excellent thickness, averaging about six feet, and the values of which pointed to a high degree of payability."

I have not been to Wakkerstroom myself, nor have I any first-hand information, but a well-known mining engineer and a friend of my own, who has given a great deal of attention to the subject, thinks very highly of the prospects of an oil shale industry, for the following reasons : (1) The cost of mining in the Transvaal is low. (2) The cost of coal and labour are low. (3) The shales on the whole are good. I am no judge of shales, but the specimens I have seen do not look anything like shale, and yet they undoubtedly burn freely.

There has been a great deal of obviously inspired information, *re* these shales, in the daily and technical Press, but I am not in a position to separate the wheat from the chaff, and at that I must leave the matter. Two points, however, must not be forgotten : the first is that the Scottish shale industry has on many occasions just about died, and the second is that it is an expensive matter in these days to put up a battery of shale retorts.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams : "Thaine."
JOHANNESBURG.

THE MARCH OUTPUT: GROUP RETURNS.

Central Mining/Rand Mines Group.

The following are the results of crushing operations of the Central Mining/Rand Mines companies for the month of March:

Company	Tons crushed.	Yield in Fine Gold Ozs.	Estimated Value.	Estimated Profit.	Estimated Working Costs per Ton.
City Deep	62,500	25,317	£124,914	£39,297	27/ 4
Cons. Main Reef	48,400	17,033	84,101	10,422	30/ 5
Crown Mines ...	202,000	59,290	292,744	82,590	20/ 9
Dur. Rood. Dp.	24,800	7,779	38,273	*2,313	32/ 8
East Rand Prop.	124,000	33,389	164,856	*3,108	27/ 1
Ferreira Deep ..	36,000	11,493	56,749	9,767	26/ 1
Geldenhuis Dp..	44,900	13,060	64,482	*1,099	29/ 2
Knight Central .	26,250	7,819	38,607	2,219	27/ 8
Modder B.	52,500	23,396	115,522	48,223	25/ 7
New Modder ...	96,000	46,206	227,649	126,209	21/ 1
Nourse Mines ...	43,800	15,106	74,430	5,315	31/ 6
Robinson	41,600	9,191	45,378	4,186	19/ 9
Rose Deep	58,600	14,680	72,483	12,830	20/ 4
Village M.R. ...	18,400	5,106	25,120	130	27/ 1
Wolhuter	31,700	8,880	43,850	7,372	23/ 0
Village Deep ...	47,800	13,823	68,343	*349	28/ 8
Tls. & averages	959,250	311,568	1,537,531	341,691	24/11

* Loss.

General Note.—The value of output has been based on estimated price of £5 5s. per fine oz., less realisation charges. Net estimated value is 6s. 3d. per fine oz. less than February. Owing to the inflation of February costs due to inclusion of retrospective adjustments of white wages and to reduced value of gold output for March as above, it is impossible to make any comparison between the two months' results. Supply of native labour generally has been more satisfactory.

Witwatersrand Deep.

The estimate of results for the month of March, 1920, are as under: Tons milled, 34,300; gold recovered, 8,553·721 fine ozs.; average number of stamps running, 200; mill running time, 24·10 days; tube mills, 5; development footage, 504 ft. The working expenditure, including head office charges, for the month is £41,180, or 24s. per ton. The estimated working revenue based on an estimate of £5 5s. per fine oz. is £44,800, or 26s. 1d. per ton. The estimated working profit is £3,620, or 2s. 1d. per ton. The estimate of £5 5s. per oz. is based on the estimate of the Transvaal Chamber of Mines. From time to time as account sales are received, the further premium obtained from the sale of gold will be published for the information of shareholders. Gold realisation charges, being exchange on advances at 6 per cent. charged by the bank, amounting to over £2,000 per month, are not included in the above estimate of results.

C. D. LUCAS & B. E. WOLFE
MINING ENGINEERS.

Permanent Buildings,
Phone 4368
P.O. Boxes 6301 and 537.
Johannesburg.

EXAMINATION RESULTS.

MANAGERS' EXAMINATION held January, 1920.—We obtained no less than **NINE** passes from **ELEVEN** Entries.

This constitutes a percentage record for this Examination.

SURVEY EXAMINATION held November, 1919.—**SIX** of a total of **SEVEN** Passes were obtained by our Students. All other coached men failed to pass.

OVERSEERS' EXAMINATION.—We are **AHEAD** of all coaches with passes 1918 and 1919.

Write for particulars of our **up-to-date** Tuition.

Union Corporation.

Results of operations on the producing mines of this group for the month of March:

Company	Stamps.	Tons Crushed.	Fine Ozs.	Total Revenue.	Revenue per ton.
Geduld Proprietary .	100	45,000	15,990	£79,758	35/ 5
Modder Deep Levels	70	43,900	23,512	115,883	52/ 9
Princess Estate ...	60	20,400	5,372	26,637	26/ 1
Totals	230	109,300	44,874	£222,278	—

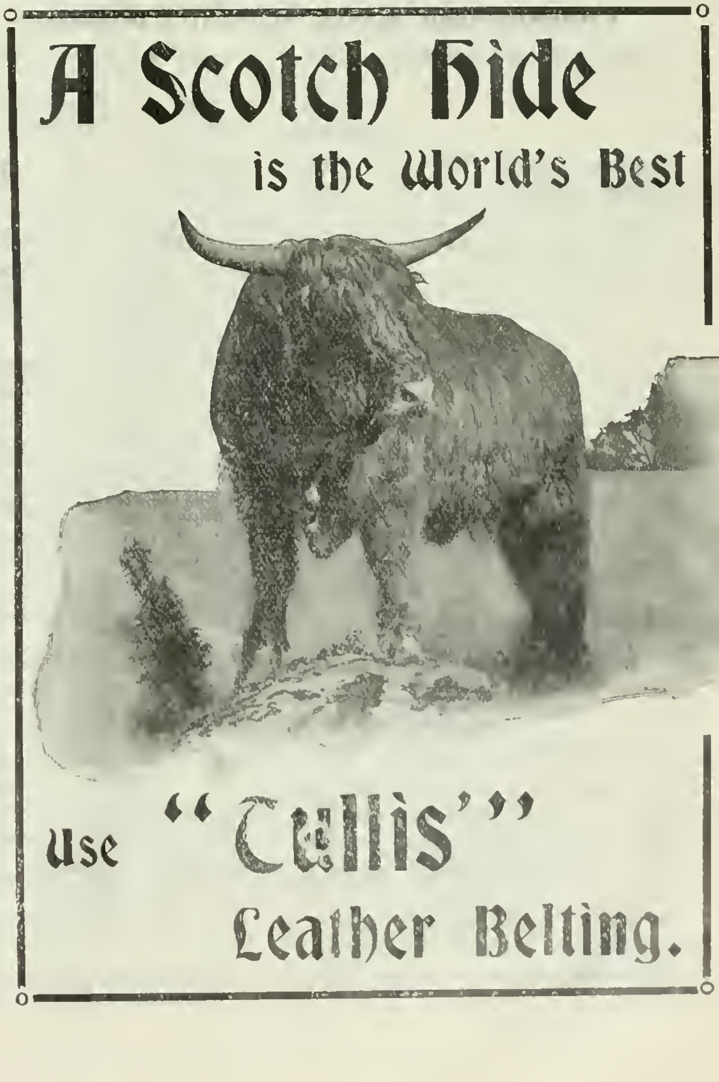
Company.	Costs. Total.	Costs. Per Ton.	Profit. Total.	Profit. Per Ton
Geduld Proprietary ...	£52,663	23/ 5	£27,095	12/ 0
Modder Deep Levels ...	46,657	21/ 3	69,226	31/ 6
			£96,321	
Princess Estate	30,986	30/ 4	*4,349	4/ 3
Totals	£130,306	—	£91,972	—

* Loss.

The revenue is based on a value per fine oz. of £5 5s. Realisation charges in excess of normal are debited direct to revenue account.

Glynn's Lydenburg.

The following are the particulars of the output of the Glynn's Lydenburg for the month of March: Tons crushed, 3,465, yielding 1,197 fine ozs.; estimated value of month's output, £5,899; estimated profit for the month, £612. The output for the month is valued at £5 5s. per fine oz., less realisation charges.



Barnato Group.

The results of operations of the Barnato group for March are as follow:

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	46,500	£64,729
Government Areas	200	129,500	270,483
Langlaagte Estate	200	42,000	59,240
New Primrose	100	19,000	19,410
New Unified	60	11,000	15,203
Randfontein Central	600	150,000	213,737
Van Ryn Deep	90	53,000	149,019
Witwatersrand	215	39,500	54,446
Totals and averages ...	1565	490,500	£846,267
February totals	1545	391,550	£732,629

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings.	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ...	£51,860	23·596	£10,061
Government Areas	149,053	23·020	122,082
Langlaagte Estate	53,405	25·431	5,996
New Primrose	18,710	19·694	785
New Unified	12,522	22·768	2,745
Randfontein Central	209,780	27·971	4,960
Van Ryn Deep	66,872	25·235	82,756
Witwatersrand	44,368	22·465	11,617
Totals and averages ...	£609,570	24·855	£241,002
February totals	£562,206	28·717	£174,380

Monthly Gross Profit.—January, £290,567; February, £174 380; March, £241,002.

Note.—The above results are arrived at by calculating the gold produced at £5 5s. per fine oz.

Consolidated Mines Selection Group.

The following are the results of operations for the month of March:

	Stamps Working.	Tons Milled.	Working Costs per Ton Milled
Brakpan Mines	110	52,300	29/ 3·287
Springs Mines	80	41,000	29/ 5·726
Totals and averages ...	190	93,300	29/ 4·357

	Value of Gold declared.	Yield per Ton.	Working Profit. based on standard value of Gold.	Working Profit per Ton.
Brakpan Mines ...	£89,583	34/ 3·088	£13,032	4/11·801
Springs Mines ...	74,687	36/ 5·190	14,259	6/11·464
Totals & averages	£164,270	35/ 2·559	£27,291	5/10·202

	Estimated Premium on output taking Gold at £5 5s. per fine oz.	Total Estimated Profit.
Brakpan Mines	£14,252	£27,284
Springs Mines	11,793	26,052
Totals and averages	£26,045	£53,336

Brakpan Mines.—Gold reserve unchanged, 3,724 fine ozs.

Transvaal G.M. Estates.

The following are the particulars of the output of the Transvaal G.M. Estates for the month of March: Central Mines: Tons crushed, 13,200, yielding 4,212 fine ozs. Elandsdrift Mine: Tons crushed, 1,500, yielding 1,162 fine ozs. Vaalhoek Mine: Tons crushed, 1,950, yielding 583 fine ozs. Estimated value of month's output, £30,992; estimated profit for the month, £4,187. The output for the month is valued at £5 5s. per fine oz., less realisation charges.

Albu Group.

The following information is supplied regarding the March operations of the producing mines of the General Mining group:—

Company	Tons Crushed.	Cost.	Cost per Ton.	Total Revenue.	Profit.
Aurora West ...	14,000	£18,033	25·76	£15,542	*£2,491
Meyer & Charl.	13,030	17,471	26·82	40,520	23,049
New Goch ...	19,700	20,570	20·88	17,257	*3,313
Roodepoort Un.	22,200	29,477	26·56	24,243	*5,234
Van Ryn Est...	37,450	34,922	18·65	41,969	7,047
West Rand Cn.	32,300	44,118	27·32	44,218	100
	138,680	£164,591	23·74	£183,749	£30,196
				Less losses	11,038
					£19,158

* Loss.

In calculating the revenue, gold has been taken at a value of 105s. per fine oz., less estimated realisation charges. Apart from the crippling influence of the new rates of white pay, the results from all mines are seriously affected by the fall in the gold premium and the abnormally high bank rate of exchange.

New Goch.—The working expenditure includes an amount of £3,200 expended on shaft sinking and development in the claims leased from the City Deep, Ltd.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits for the month of March of the undermentioned companies of the Consolidated Gold Fields group:—

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs	Total Profit
Simmer and Jack ...	320	7	47,000	10,941	*£3,554
Robinson Deep	160	9	55,200	17,207	16,997
Knights Deep	400	11	96,000	16,194	*375
Simmer Deep	220	10	43,700	9,416	*10,238
Jupiter	80	5	25,800	5,911	*813
Sub Nigel	30	2	10,300	6,058	10,489
Totals	1,210	44	278,000	65,727	£12,506

* Loss.

Gold in Reserve.—Robinson Deep, 1,514 ozs.; Sub Nigel, 2,500 ozs.; total, 4,014 ozs.

Revenue derived from gold for the month of March is calculated at the rate of £5 5s. per fine oz. The above profits and losses do not include gold realisation costs which, owing to abnormally high bank charges, are estimated at about 6s. per ounce of gold.

Mauritius Prosperity.

Mr. Colin 1. Simpson, joint managing director of Messrs. Robert Hudson & Sons, Ltd., the well-known engineers, who has been on a visit to the island, says that Mauritius may to-day be regarded as a country in the zenith of its prosperity owing to the price of sugar, the product on which the island entirely depends. The planters well deserve their good fortune, having in past years, owing to the competition of beet sugar up to the outbreak of the War, and also to the devastation brought about by the last cyclone, suffered very severely. Mr. Simpson went from Durban to Port Louis in 6½ days in the "Comrie Castle," of the Union-Castle Line. He noted 19 vessels in the harbour of the capital, and every person seemed to be busy and to have plenty of work. He mentions that a great deal of money is now being made by reason of the high rate of exchange, the coinage being Indian money. Apart from sugar-growing, a movement is now on foot to establish factories for making gunny sacks from hemp. The island (says Mr. Simpson) seemed to possess a beautiful climate. Everywhere he saw lovely homesteads, and the people of this little paradise were living in the lap of luxury, all kinds of food being plentiful. And lastly, Mr. Simpson reports that the French people are entirely satisfied with British rule.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

West Rand Reefs.

To the Editor, *S.A. Mining and Engineering Journal.*

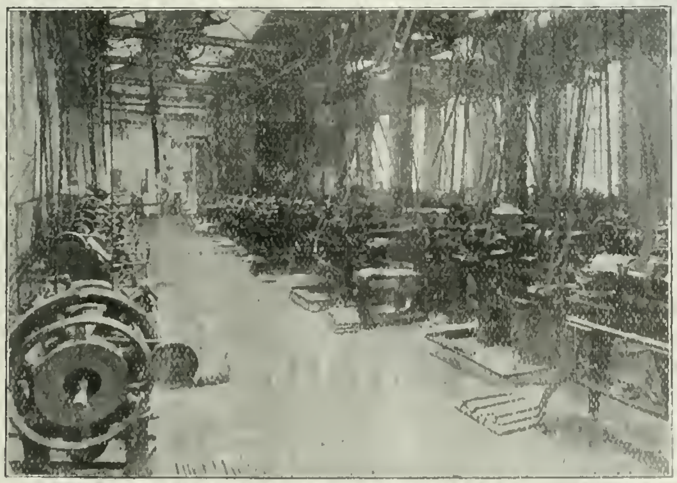
Sir,—After many years of prospecting and drilling operations carried on within the Krugersdorp mining area, the true Main Reef series of reefs in its proper position as on the Central Rand section with its underlying red bar has now at last been discovered away from and on the dip of the Government series of reefs. The discovery was completed when nature helped with the last heavy rains and the rush of water coming down from the York mine dam disclosed the South Reef in the walls of the spruit near the golf ground, about 125 yards south of the Krugersdorp Police Station. In going north from the same station a distance of about 250 yards the Main Reef red bar can be seen outcropping and striking east to west and following up this bar in an easterly direction for a distance of about two miles the true Main Reef overlying this red bar can be seen outcropping. The dip of the Main Reef strata is south towards the West Rand Consolidated Mines and the Luipaardsvlei G.M. Co. By going west the Main Reef strata can also distinctly be seen west of the Krugersdorp West township on the right side of the road leading to Rustenburg, where the formation has been stripped of the loose soil for road making, and striking towards the Queen's Battery Stand where the Rand strata in this locality is covered by Black Reef formation. South of the Queen's Battery the strata curves round and strikes south, dipping east towards the Randfontein Mines. Now for the last thirty years all the managers on the Western Rand mines were made to believe by our eminent geologists and experts that they were operating on the Main Reef series of reefs overlying the Government Reef as on the Central Rand, whereas in reality they are to-day operating on the Kimberley beds, having missed the true Main Reef series of reefs lying close and north of their mines on the dip of the Government Reef in its true position. Our geologists and also the late Dr. James Carrick, who was an authority with whom I went many times over the West Rand, were never able to account for the increased thickness of the strata between the Government Reef and the reefs now operated on south of Florida, and further west right past the Randfontein Mines. On Waterval 74 Dr. Carrick connected up the Government Reef with the Penwith series of reefs on his map by dotted lines, the Rand strata between the two points being covered by dolomite and Black Reef strata, thus bringing by mistake the Government Reef into a straight line with the series of reefs on the Penwith property, thereby making the Randfontein reefs the Main Reef series of reefs and upsetting the whole West Rand geology. Now this new discovery near the Krugersdorp Police Station has upset completely the maps on the West Rand designed by Dr. Carrick and Dr. Hatch, which maps were taken for granted by most of our experts and all mining houses. When travelling from Florida to Roodepoort by rail the Main Reef red bar can be seen outcropping distinctly on the southern side of the railroad dipping south, whereas from Luipaardsvlei to Krugersdorp the Main Reef red bar can be seen north of the railroad all along the valley in ridges, also dipping south. Before the War I made a statement that Krugersdorp would become the largest mining centre on the Rand when once the vexed question about the true position of the Main Reef series of reefs was settled, because I always contended that all the mines along the Western Rand were operating on the reefs overlying the true Main Reef series of reefs. This new discovery is no doubt for the good in many ways, because now we will make a new start on a Main Reef outcrop-line being only covered up for miles by loose soil, and with this discovery all the Western Rand mines become deep level true Main Reef propositions and the benefit derived therefrom will be immense to all concerned. Now the question arises: why was this new discovery not made before? In my opinion the first leading geologists and experts were the cause of it, because they had their maps and reports printed on the Rand formation which were considered to be right by our mining houses, and no financial support was given to prove it otherwise. Will you kindly, for the benefit of the mining public, insert the above in your valuable paper?—Yours, etc.,

E. KUMST,
Consulting Engineer.

P.O. Box 4661, Johannesburg,
7th April, 1920.

A Record Heavy Motor Truck.

An original type of heavy motor truck has been porduced by a British firm. It is a six-wheeled tractor-truck, capable of carrying a useful load of 7½ tons, without exceeding a total weight of 6 tons on any axle. It is also designed to haul a 6-ton trailer, and is therefore claimed to give a greater carrying capacity than any other type yet produced, although its weight is practically the same as that of a well-built 3-ton truck. The body portions rests on a turn-table over the middle wheels, and ingenious arrangements are made for braking the back wheels. A four-cylinder engine develops 47 horse-power at 1,000 revolutions per minute, and drives the vehicle at 12 miles per hour.



PHONE 4673. BOX 3162

OSBORN'S
PATENT
"Daly" Tappets and
W. & S. Tube Mill Liner.
WRITE FOR DESCRIPTIVE BOOKLET.

Samuel Osborn (South Africa.), Ltd.,
SHEFFIELD AND JOHANNESBURG.

AN APPRECIATION OF THE SHAMVA MINE.

There has recently been issued in London a most interesting and profusely illustrated description of the Shamva Mine. We suppose this has been with the consent of the board, though the statement is not made. The company is under the management of the Gold Fields Rhodesian Development Co., and has a strong directorate in London, with an able technical and managerial staff on the spot. Shamva is unquestionably in the front rank of the best mines of Rhodesia, and has taken a prominent position amongst the gold-producing mines of the world. It bears evidence of having been worked in prehistoric times, and the present-day explorer has simply followed in the footsteps of the ancients, but has gone deeper, and has brought to bear upon his labours modern technical skill and scientific methods. The claim in this review is that the Shamva is the largest gold mine in Rhodesia; but we should like to know what Globe and Phoenix people have to say to this.

It was towards the close of the last decade that Shamva came into notice. Early in 1909 the Lone Star Hill, some 60 miles from Salisbury (the Rhodesian capital), and close to Abercorn, was visited. The hill is 800 feet high, and surrounded by successive ranges. It is to the credit of Consolidated Gold Fields of South Africa that it should have been early in the field, and thus was able to secure control over a considerable area. Development work was commenced in the middle of 1909, with results so good that in 1910 the present company was formed, the vendors being Mayo (Rhodesia) Development Co. and the Abercorn Syndicate, the consideration paid to them being 250,000 fully-paid £1 shares. Additional claims were subsequently acquired, and the number is now 525, equivalent to about 1,000 acres, to which should be added 666 morgen in the vicinity. The mine is in direct railway communication with Salisbury.

The capital of Shamva Mines, Ltd., is £600,000, in £1 shares, fully paid and all issued, and the present price is 2⅛. The conformation of the property enables it to be worked by adit levels, the cheapest form of mining known, as it entails no sinking, pumping or hauling, the mill being supplied with ore by gravitation. Hence the low rate of working costs of 10s. per ton. Five years elapsed before the first dividend, of 5 per cent., was paid. This was in March, 1915, and quarterly dividends have since been continued. The permanence of the mine is established by immense reserves, which are now represented by 1,936,000 tons of an assay value of 4.3 dwts. gold per ton. The veins vary in richness and in regularity, and are not sampled in the ordinary way, but by a special milling plant. There is now operating a complete equipment, which came into full commission in May, 1914. There have been crushed 3,301,912 tons for a recovery of 551,748 oz., of a value of £2,336,803, giving a net profit of £850,000.

Shamva has had the benefit of the gold premium since July last. The premium of 20 per cent. (Kaffir mines claim an advantage of 19 per cent.) would represent, on the 1919 production of £407,345, an additional profit of £81,868, and the statement is made that every rise, or fall, of 2s. 6d. per oz. represents 3 per cent. on the Shamva capital on the present output basis, and this would provide for an increased distribution of approximately 13 per cent. The Cymric Extension, of which a high opinion is entertained, may yield still further profits Shareholders have so far received 126½ per cent. in dividends and bonus, or £712,500 on their capital of £600,000. The dividend in 1919 was 20 per cent., and the forecast of the future is double that amount. It is contended, and not without reason, that "Shamva shares are a secure investment." Every arrangement is made for the comfort of the European staff and the natives employed, and amongst the latter the district is described as "exceedingly popular." The medical attendance is perhaps as perfect as it can be in any mining camp. A few such mines as Shamva would advance very greatly Rhodesia in the estimation of the public as a gold producer.

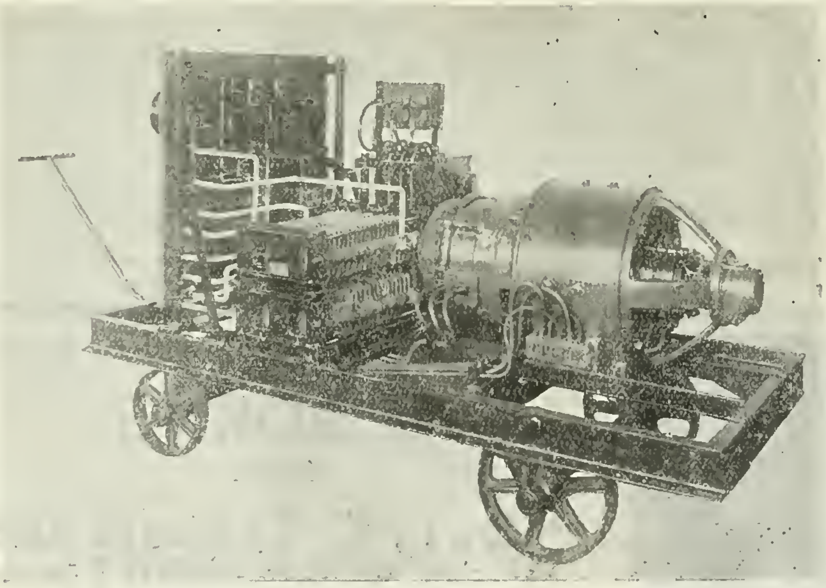
Easy Running on Electric Railways.

On the underground electric railways in London an ingenious method is adopted for giving resilience to the track. The sleepers are supported for a distance of about 3 ft. 6 in. at the centre, the ends of the sleeper forming cantilevers. This arrangement provides a kind of "spring," which serves the same purpose as rubber tyres on a hard road, and thus makes the running of the trains very easy.

Instantaneous Portraiture with Spectacle Lenses.

As every amateur photographer knows, it is impossible to take portraits indoors with instantaneous exposures on the ordinary camera. A large aperture lens is necessary, and it is a very costly piece of apparatus. Mr. H. D. A. Power, a British photographer, has, however, been able to get quite good results by means of an ordinary "pebble" spectacle lens, costing only a few shillings. He used a lens with a focal length of 4½ inches, and a full aperture of 1½ inches, and obtained such good results that he looks forward to the more general adoption of lenses of this type.

ARC WELDING.



4 K.W. PORTABLE ARC WELDING SET.

Considerable economies can be effected by the installation of Arc Welding Equipments in your repair shops.

Let us help you to reduce
:: :: your costs. :: ::

SOUTH AFRICAN GENERAL ELECTRIC Co., Ltd.,
Box 1905. JOHANNESBURG. Phone 4321.

ENGINEERING SECTION.

ARC WELDING AND ITS APPLICATION.

[By E. B. Bell.]

The art of welding by means of the electric arc in the past few years has been brought to such a state of perfection that it is now adaptable to practically all applications where iron and steel are to be joined; and it is with this general assertion in view that the author ventures to state that its employment should be much more universal in South Africa. To be successful and lasting any method of autogenous welding must give the following results:

(1) Uniform reliability under normal operation of equipment.

(2) Homogeneity of metal deposited.

(3) Repaired parts restored to their original strength without impairment of the characteristics of the parent metal parts.

(4) A cost which is not out of proportion to the results obtained.

These, it has been demonstrated, can all be obtained by the use of the electric arc, employing either metallic or carbon electrodes. For heavy work the carbon method is appreciably quicker, and for this reason is used largely for filling holes in defective castings, although even for this class of service a better looking finish with less likelihood of burned and hard spots could be obtained with the metallic. For cast iron, the carbon process must be used unless steel studding is resorted to, a filling rod of cast iron and a flux of bicarbonate of soda giving the best results. For cutting, the carbon arc produces results which although not as clean as those made by gas, are quicker and more economical.

A.C. vs. D.C.

The A.C. voltage is obtained directly from distribution mains through a transformer, the theoretical efficiency of which is high compared with the D.C. system, which requires the introduction of a motor generator set, a resistor or both. The efficiency of A.C. sets now on the market range from 68 to 80 per cent. These transformers are designed with large leakage reactance so as to furnish stability to the arc, which very materially reduces their efficiency when compared with that of standard transformers. If power is purchased, the cost of energy will probably be low; however, the welding circuit produces a very low power factor from 20 per cent. to 25 per cent., and if this is taken into consideration by the central station, the resulting cost will be higher than for the D.C. If the user has his own station the cost will be higher for the equivalent capacity in K.W. For example, if it takes 10 K.W. at the arc and a power factor of 25 per cent. the capacity required for power house and feeder equipment would be 40 K.V.A. Added disadvantages are the reduction in welding speed, the liability of oxide and slag introduction into the weld, the fact that it does not permit of the use of the carbon electrodes with its added advantages, and that it necessitates the use of flux covered electrodes with their high initial cost; in this respect it may here be stated that as there has been no uniform superiority of results with either system, there would be no justification in spending seven to eight times more for one type of electrode.

Arc Welding vs. Gas Welding.

Gas welding is considered superior for thin metals up to 1-16 in. in thickness, the flame can be used to smooth down the joint after the weld has been made, and the operation is cheaper, although a carbon electrode without the addition of metal has been used with satisfactory results. For larger steel sections metallic electrodes produce results equally satisfactory with an increase in speed and a decrease in cost. Some of the main advantages of metallic welding over gas are as follow:

(1) Tools for performing the work are simple and easy to handle.

(2) For all work except very thin sheet metal it is cheaper.

(3) The voltage and current values are so low that the process is perfectly safe.

(4) No danger from explosions or fire.

(5) Welds can be made on overhead or vertical planes.

(6) The extremely localised character of the heat results in smaller areas of disturbance and elimination of preheating, and is economical in that the heat can be applied exactly where required.

(7) No dependency on materials, only rods are needed which in an emergency can be obtained at any hardware store.

(8) With gas welding there is the liability of oxidation and carbonisation of the weld by gases in the flame, and crystallisation and cracking of the weld on cooling.

Regarding comparative cost with oxy acetylene, the following figures are based on favourable working conditions; however, they are only approximate and should be used merely as a general guide:

Thickness of plate in ins.	Electrode diams in ins.	Amperes.	Speed. ft hr.	Cost per ft. in pence.	Comparative cost per ft. of Acetylene
1-16	1-16	20-25	20	1	0·88
$\frac{1}{8}$	3-32	50-75	16	1·5	2·33
$\frac{1}{4}$	3-32	75-100	10	3·5	6·6
$\frac{3}{8}$	$\frac{1}{8}$	80-150	6·5	6·2	18·0
$\frac{1}{2}$	5-32	175-225	1·3	9·9	Much higher.
$\frac{3}{4}$	3-16	200-225	2·0	20·8	,, ,,
1	3-16	225	1·4	30·6	,, ,,

Power Equipment.

Of the D.C. systems which we will only consider, there are two in general use:

(1) The Constant Potential.

(2) The Constant Energy.

The former usually consists of a standard low voltage generator wound for about 60 volts used in conjunction with an adjustable series resistor maintaining approximately 20 volts at the arc. Due to this resistor the system is comparatively inefficient, but is very popular in the fact that one set can be used by a number of operators, by the addition of auxiliary panels. Constant energy equipments, on the other hand, are essentially one man outfits, and are manufactured in both stationary and portable types; two sets may be connected in multiple in an emergency, but this is not recommended. Arc welding imposes certain rather peculiar characteristics upon the current source. The current must be limited at all times, even upon short circuit. It must, however, not decrease while the generator approaches short circuit conditions; thus it will be seen that the so-called "Constant Energy" conditions are exceedingly desirable over the range of arc voltages commonly employed. Many constant energy generators now on the market are capable of delivering the various definite currents required by a single operator at voltages ranging from the desired open circuit or striking voltage, to practically short circuit conditions, and there is at least one which accomplishes this and is yet self exciting. Besides the power unit referred to above, practically the only other essentials required are a good mask and electrode holder, both of which are supplied by all manufacturers with their apparatus.

APPLICATIONS.

Opportunities for the use of arc welding equipments are so many and varied that it will only be possible to touch on a few of the most important applications, particularly those in which in the writer's opinion large savings could be effected if introduced into South Africa.

RAILWAY REPAIR SHOPS.

With the present age of high costs of new machinery it is absolutely essential that new engine requirements should be reduced as much as possible, especially in a country like ours involving long delays in delivery and high importing charges. Besides minor repairs there are several important applications where large savings can be effected by the installation of an arc welding equipment. Perhaps the greatest benefit derived has been the lengthened life of flues and the elimination of possibly 90 per cent. of flue failure. The back sheets are first thoroughly cleaned by either sand blasting or other convenient methods, care being taken to eliminate all oil from the vicinity of the flues. The tubes are set in place and copper ferrules inserted about 1-16 of an inch back of the flue head, thus preventing their protruding from under the head of the flue when prossered and rolled. A full set of locomotive tubes 36 superheater and 256, 2¼ inch have been welded by one operator in 12½ hours. This is by no means an exaggerated case, although out of every hour, approximately 10 minutes is consumed in renewing electrodes, and 4 in the use of the wire brush. Statistics from one of the largest railroads in the United States show that in 1911 before welding had been introduced there were 78 failures averaging out at 17,816 miles per failure, while in 1916 with welding, there were only 6 failures averaging out at 239,651 miles per failure. Fire box repairs are also now representing a large percentage of the work done by the arc, consisting chiefly in patch work such as renewing bad portions of the head and converting saturated engines into superheaters. Other important repairs remedied by most of the large railroad companies include broken frames, in this case the crack should be " v'd " from both sides one half-way through to an angle of 45 degrees, leaving approximately a 3-16 inch opening, building up flanges on wheels and filling up flat spots. These operations can be performed in most cases without removing the wheels, and in all cases without a reduction in wheel diameter. The welding of cast iron cylinders has not yet been so generally taken up, though in New York Central Railroad shops at West Albany, which the writer was fortunate enough to visit during the latter part of 1919, cylinders costing in the neighbourhood of £250 were being satisfactorily patched at a cost of from £10 to £20. The cracks in these cases are first " v'd " out with a chipping tool and the edges lined with steel studs.

SHIP BUILDING.

Applications in the ship building so far have been restricted to minor parts where failure would not be fatal to the safety of the ship, and although many advocate its use to the main structure, insurance companies have been slow to approve. It would be of interest to state at this point that there has been in service since June last, a 275-ton all welded cross channel barge, and ships up to 5,000 tons are now under consideration. The principal parts in ship construction, which have been welded in the past few years, consist of the staples which are used to make water or oil tight joints around frames, girders and beams, and several other minor parts such as stairs and ladders, including rail attachments, stacks, uptakes, partition bulkheads, framing and supports for engine and boiler room, floorings or gratings, etc.

GENERAL REPAIR SHOPS.

It would be impossible to tabulate the uses that are welding equipments have and can be applied to. One cause of considerable loss is the breaking off of taps and drills in castings; ordinarily their removal would mean damaging the castings sometimes beyond repair, whereas, with the process under consideration, metal is built on to the tap to the level of the casting and there welded fast to a nut whereby the whole can be removed on cooling without damaging the threads already made. Other important applications include repairing broken gears and teeth, rectifying errors in machining, welding small sections of high speed steel to ordinary machine steel shanks, and building up worn spots such as shafts, valves, etc. It may here be interesting to state that in the building up of shafts as well as in tank construction, a novel equipment, " The Automatic," is now quite generally used. As the name implies, the main principles are exactly the same as that of the ordinary system with the difference of the removal of the human element. A small welding wire is fed from a reel to motor operated pulleys. The motor is an ordinary shunt wound machine, the field being excited from any fairly steady source of direct current through a small regulator which holds this field current absolutely constant. The armature voltage is tapped from across the arc, consequently with a long arc and higher voltage the motor tends to speed up, and shorten this arc length, the reverse being the case when the arc becomes too short. The equipment may be mounted on a suitable Jigg and made to move uniformly along the seam of a tank, or work such as a shaft may be rotated in a lathe and the automatic moved slowly in a horizontal direction by means of a screw feed. Electric arc welding unfortunately is considered by many from hearsay, as in its experimental stages and as such unreliable, but judged from the uniformly successful results obtained wherever the system has been given a fair trial, it is safe to say that it will play an exceedingly large part in engineering practice in the future, especially in a country like ours, where repair work is carried on to such a great extent.

SOUTH AMERICA

HEAD OFFICE:
MONTREAL, CANADA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE
Buenos Aires.

BRAZIL
Rio de Janeiro, Santos, Sao Paulo.

URUGUAY
Montevideo.

VENEZUELA
Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.

COLOMBIA
Barranquilla.

BR. GUIANA
Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON
Princes St., E.C.

PARIS
28, Rue du Quatre-Septembre.

NEW YORK
68, William St.

BARCELONA
Plaza de Cataluna 6.

THE ROYAL BANK
OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - $500,000,000

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Holiday Trade not too Bright—Machinery Specimens Good but Stocks Poor—Captains of Industry—Sharp Rise in Deals—Oils and Colours—Brushware Difficult to Get—Electrical Goods—Iron, Steel and Machinery.

After a week's out and out holiday for Easter and our great Agricultural Show, as well as the Passover holidays, we shall be glad to settle down into something like normal. But so far the outlook is not too bright, as the heavy increases on account of factory labour having taken place in Britain on April 1st sent up prices quite another 10 per cent., and even more in some lines. The latest cables and mail advices report that the position in regard to labour is becoming so difficult in England that most standard prices have been withdrawn, and manufacturers will only accept orders on the distinct understanding that the rates will be those ruling on the date of delivery to the carriers. Therefore a lot of forward business is hung up in Johannesburg through a spot quotation not being possible, and sometimes the mine indents are autocratic in that particular requirement. Although there were plenty of samples at the Show of agricultural machinery, as well as mining in a lesser degree, yet the samples were only poorly supported as regards actual stocks, which curtailed business. There were a few features, such as the Lion oil-less windmill, which is fully equipped with a special set of phosphor bronze bearings and graphite embedded by hydraulic pressure, so ensuring thorough lubrication, doing away with the dangerous practice of climbing towers. The Show is now big enough to make its influence felt in Johannesburg throughout trade circles, as a manager of a cartage company was heard to remark in reply to a complaint as to a delay in delivering some ordinary goods that the chaos created in his firm in consequence of the Show had upset the smooth running of its every day work.

A GREAT CAPTAIN OF INDUSTRY.

Now that Lord Leverhulme, a Lancashire man to the core, has visited us, it is imperative to include this "Captain of Industry" in these notes. Whilst Lord Leverhulme has been highly successful it must be borne in mind that he had a sympathetic start, as his family for a generation or so had been connected with the soap industry. That need not detract from his hustling energy when he went out on "the road" to bring grist to his father's mill. This was his very forte, and he took advantage of it to its full, hence with his excellent driving force always behind the gun the rest was comparatively easy. In an interview with a successful American trader he explained that he had to change his employment several times, and so get into congenial work, so that he could enthuse and enthuse. Again, the great American philanthropist Peabody had several failures before he made a big fortune in London in the financial world, therefore the South African young man must be sure that he gets into his best "fighting groove," and so obtain the very best out of himself, and this particular work he can only find out for himself. For example, what use is it for a man (or young woman) trying to learn the piano if he has no music in his soul? Lord Leverhulme believes in the capitalistic plan for bringing the best out of men in whatever sphere one is destined to work. In this connection there is an article in *The London Magazine* of February, 1920, on the nationalisation of industries in Australia, stating that it has been a dead failure, because it has brought human nature, with all its whims, ills, and devilments, also to a dead level. "So far nationalised sawmills, brick works, bakeries, mines, etc., are all in the same plight, as what is everybody's business is nobody's business. Therefore after years of a fair trial nationalisation, ever driven on by a merciless trades unionism, has come to a financial end. High wages, short hours, slow work, and an empty treasury are the forerunners of possible industrial suicide in Australia." "The Prime Minister of the Commonwealth is reminding the people that only hard work, co-ordination, economy, and PRIVATE effort can bring progress to, or revive it in Australia." All this is in support of individual progress, as Lord Leverhulme, asked why men staked their fortunes, he answered himself by saying, "The prospect of high gain. But the anti-profiteering Acts put investors in the position of staking their money without even the security of debenture-holders." His lordship differentiated between the driver of an ox cart and his 12 hours a day, and a loco engine-driver, who, with such conditions, would become a wreck before he was middle-aged. He went on to say that the industrial possibilities of South Africa are immense, but the word probabilities can well be used to-day, for look at the great progress made in the industrial section of "yesterday's" Agricultural Show, and look at the wonderful machinery, some of the best in the world, of our existing gold mines. Still, as his lordship says, with more capital and the lead of the best experts to guide the initial stages much, very much, more can be done. However, we have to be careful not to run too fast, as for a time Eloff Street, the Carlton Hotel, the wonderful ice-skating rink, with others, were placed amongst the white elephant brigade. Visitors must also bear in mind that at present we have not an unlimited population to work our schemes upon. The mineral wealth and our tractless acres of virgin soil are the two great factors at the moment as recognised by his lordship, and the great War has given us many real ideas as to what can be done towards exploiting much of the wealth which hitherto had been a drug in the market. Fancy sending butter, bacon, cheese, fish, and fruit away practically in their shiploads, and the possibilities in this direction are unlimited. South Africa will much appreciate Lord Leverhulme's homilies, and may it encourage many a young man to do his best for our great and sunny homeland by courage, frugality, and enterprise.

TIMBER AND BUILDING MATERIALS.

There has been a sharp advance in deals over the holidays, as the price is from 2s. to 2s. 2d. per foot, which is quite 2d. more. Floorings are $10\frac{1}{4}$d. to $10\frac{3}{4}$d., and ceilings $7\frac{1}{4}$d. to $7\frac{1}{2}$d. Roofing iron, 1s. $6\frac{1}{2}$d. to 1s. $7\frac{1}{2}$d. per foot. The idea is that values will still mount up, as the new season's timber from the Baltic is not expected for another three months for delivery in Johannesburg. Floors and ceilings may

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7 in.)

COULD PRODUCE

Rounds and Squares (to 6 in.), Channels, Joists, Tees Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3218.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

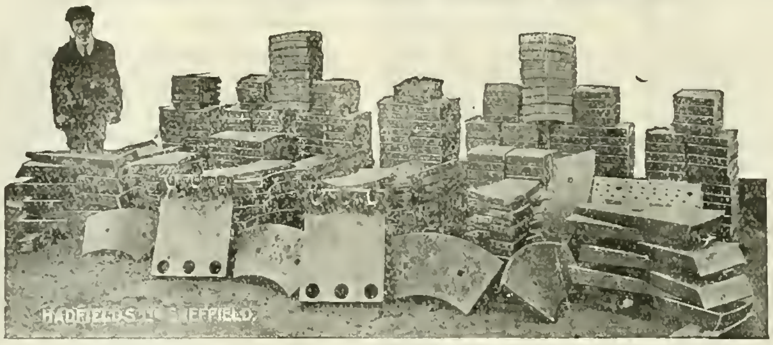
HADFIELDS LTD.

ERA
Trade Mark.

SOLE MAKERS OF HADFIELD'S PATENT
MANGANESE STEEL

The Supreme Material for the Wearing Parts of Stone Breaking and Ore Crushing Machinery, etc.

Complete
Stone Breaking
and
Ore Crushing
Plants.



Group of Hadfield's Patent "ERA" Manganese Steel & Hadfield's "CHROME" Steel Wearing Parts for Ball Mills and Tube Mills.

Steel
Castings
and
Forgings
of all descriptions.

Mining Requisites of all kinds, Grizzley Bars, Shoes & Dies, Steel Wheels & Axles, Balls for Ball Mills, etc.

Head Office for South Africa:
46 & 47, CULLINAN BUILDINGS,
JOHANNESBURG.
'Phone 5900. Tel. Add.: "Hecla."

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

Natal Agents:
THOMAS BARLOW & SONS (S.A.)
Limited.
Smith Street, Durban.

WM. HODGSON & SONS

(Weighing Machinists) LIMITED,

MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,

WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—

Geo. GRADOCK & Coy. (S.A.) Ltd.

Box 316. Tel Add. "Ropes" Tel. 539.

not advance much, because there are plenty on the way, or rather booked, also deals in a lesser degree, as they are none too plentiful at their base. There is a little easing off in bricks, as no building was done during the holidays, therefore a little leeway was made up. The price is about half a crown per 1,000 cheaper, particularly for big lots under good contracts. The auction sales this week are perhaps hardly a guide in holiday times, but sufficient to show that the demand or lack of demand has been interfered with, owing to the much talked of Rent Profiteering Bill. The better way of putting it is that the smaller property under £10 per month is shelved for the present. A labour man, a property owner, had a telegram from his party on Wednesday, saying that it is impossible for the Rent Bill to go through in its present drastic form. The whole thing has had a tendency to check work in the building trade, and undoubtedly a few contracts have been held back.

OILS AND COLOURS, ALSO BRUSHWARE.

Turpentine is still in the acute stage of shortage, so much so that one trade list only gives small bottles for sale at 2s. 6d. each. Turpentine substitute 10s. 6d. per tin, each 5-6th Imperial gallon. Consignments are said to be on the water from New York, which will relieve the position somewhat. Genuine white lead in oils for 100lb. kegs, 110s. each; small sizes 1s. 3d. lb. Red lead 1s. lb., in 50lb. kegs, and lesser quantities 1s. 3d. Genuine dry white lead 1s. lb. Linseed oil, raw or boiled, small lots, 2s. 3d. each; 7lb. tins 14s., 4 Imperial gallon drum 70s. Red oxide, in oil, 90s. 100lbs.; purple ditto, 42s. 6d. 50lbs. Dry red oxide, 16s. per 100lbs. English putty, 9d. lb., in bladders. Ready-made paints, 1s. 6d. lb., in all sizes, including 70lb. drums. This is a proof that the small-sized tins at the price of turpentine are not profitable to make up at the moment. Roofing paints, 14lb. tin 17s. 6d., 70lbs. 85s. Oil, gold size, 3s. 6d. per ½lb. pot. Copal varnish, 27s. 6d. per Imperial gallon. Johannesburg is very bare of plate-glass, but it is understood there is some at the Coast, most (if not all) of which has been booked to arrive. It is most difficult to obtain brushware from oversea, owing to the scarcity of bristles in England; therefore all prices have advanced enormously, and it is feared that many kinds of paint brushes will gradually disappear off the market.

Interviewing the manager of The "Ingle" Colonial Broom Co., Ltd., the manager, Mr. Beer, informed the writer that there was not only a difficulty in obtaining supplies of raw materials, but that such quantities as they were able to obtain had reached such a figure that the manufacturer can scarcely hope to make the goods at a profit. He finds that in bristles and some lines of hair and bass the prices have almost reached a prohibitive figure, and there can be no question, in his opinion, that prices of all descriptions of brushware must reach a much higher level than they are at present. The company has been compelled to curtail 20 or 30 lines of brushware, owing to the cost of materials. Lines of brushes, to give a typical case, which were selling last January for 41s., are now 67s. 8d., and this illustrates more or less what is happening in respect of almost all other lines; and high as this price may seem, in England the price for the same line is 102s., which if landed here would cost 144s. The manufacture of fibre goods is still fair, but bristle brushes has been very much curtailed.

ELECTRICAL GOODS.

The electric goods market remains much about the same as last reported. The consignment of 10,000 ceiling roses referred to in our last week's issue was, we are informed, already disposed of before its arrival in Johannesburg, and thus the scarcity of these, which had been acute for some time previously, is in no measure relieved. A prominent dealer, who has just returned from a week's visit to Delagoa Bay, reports that the shortage of ceiling roses and other requisites is not confined to the Union only, but extends even to Portuguese territory. Strong hopes are entertained that shipments already advised will shortly arrive to ease the position. Lamps, wiring, and tubing are still about the same, with a tendency to go higher. Business on the whole, both town and country, has been satisfactory, but the holidays have, of course, decreased the volume of trading.

IRON, STEEL, AND MACHINERY.

The engineers and moulders restarted after about six weeks' idleness, very much in earnest, and orders are again in evidence for bar iron and steel as well as other business. A letter received from Cardiff stated that since the moulders' strike was fought out to a finish there is not the same rush to "down tools" as there was; now as a rule the labour disputes are easier to arrange than they have been. A cable was received that small angles, tees, and channels are more difficult to get than ever. Shafting now costs 6½d. lb. basis, landed in Johannesburg. A London letter by the last mail says that the tinplate workers in South Wales receive more money than any other artisans throughout Britain, which created jealousy with the workers on tinplate steel bars, hence the labour trouble, which is understood now to be settled. The tinplate works have all sold out into the third and fourth quarters of the year, and one can only buy tinplates from dealers. The advice goes on to say that they see no prospect of any real improvement in the output of sheet iron and hardware goods until Europe, including France, Belgium, Germany, and Austria get the wheels of their industry running again. When they do, things will tend to improve much more rapidly. As a general statement British manufactures of all classes are sold out; the real trouble is they are not only sold out, but the outputs are less than in pre-War days. We see no reason for losing hope, because after such a War, involving millions of men, it is not reasonable to expect them to settle down to work right away, without any bother at all. The following are Johannesburg quotations:—Imported mild steel, according to cable advanced to £37 a ton at works in England, meaning £40 here; present price is 37s. 6d. 100lbs. Tool steel, 7½d. lb.: hollow, 10½d.; shafting, 7½d. to 8½d. Shovels, No. 2 60s. dozen, No. 3 65s., No. 4 70s. Wheelbarrows, 70s. Bolts and nuts, ⅜in. 1s. 6d., ½in. 80s., ⅝in. 75s., ¾in. 70s., ⅞in. 65s. Brass rods and plates, 2s. 6d. Wire nails, 52s. 6d. to 65s. 100lbs., according to size.

Another Rivetless British Ship.

An electrically-welded ship recently launched from a shipyard at Birkenhead, England, makes the second of this novel class of vessel. No rivets have been employed even in the hull, all the plates being butt-welded by the electric arc process. The first 1,000-ton ship constructed on this principle has been at sea for over two years, and has thoroughly justified the confidence expressed by the British engineers who advocated this radical change in methods of ship construction in order to save labour and materials.

SALISBURY, RHODESIA.

WIGG & JENKINS,

MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.

Gold and Base Metal Properties

FOR SALE AND WANTED.

Correspondence invited.

P.O. Box 118. Telegrams: "WIGG."

OUR SPECIALITY!

(NOT TO BE BEATEN).

MAGNETOS

! F. HOPPERT. !

MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:

Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

Company Meetings.

CASSEL COAL CO.

The 22nd ordinary general meeting of shareholders in the Cassel Coal Co., Ltd., was held on March 30 in the board room, Lace Buildings. Mr. J. Dale Lace presided, and there were also present: Messrs. L. Edwards, W. Ross, R. Hedding, J. Jeppe, W. J. Gan, A. Langebrink, J. G. Carter, W. Tarlton, A. Howat, A. H. Robertson, G. B. Pascoe, E. H. Lamb, B. Wimble, B. Southwell, W. Nelson, D. O'Regan, W. Christie, and J. F. Blacklock (with the secretary, Mr. T. L. Day), representing 138,929 shares out of 200,000 shares.

In moving the adoption of the report, balance sheet and profit and loss accounts, the chairman said: The directors' report, profit and loss account, balance sheet, and appropriation account for the year ended December 31, 1919, are before you. Before moving their adoption, I will briefly remark upon the circumstances of your company since we last met you in March, 1919. The item to which I will first refer is the net earnings of the company during the period under review. They figure at £30,346, as against £27,984, for 1918, being an increase of £2,362. Not a great increase, truly, but in face of the difficulties which are presented to all of us who are engaged in the coal trade, it is one which those of us who know these difficulties and have to contend with them daily have learned to appreciate. I am not going to weary you by going into details of our troubles. They are general to all South African collieries, and we have no greater share of them than our neighbours. The perennial one is, of course, insufficient railway facilities. I have so often told you that we hope for betterment in this regard, that I am rather diffident to say so again. But, nevertheless, I will once more say that I believe the Railway Administration are making serious endeavours to provide adequate rolling-stock and traction, and that the situation would be to-day infinitely better than it is if their acquisition could be filled. Unfortunately, world conditions are such that it is very difficult to get such orders executed, and we have to suffer accordingly with the best grace we can. Then we had to face heavily increased costs in respect of labour and supplies, and there is no sign of diminution in those directions, but rather the reverse. High selling prices of coal are no advantage to us. Ordinary traders pass their increased costs on to the individual consumer, so increasing the cost of living which is so hateful to every member of the community.

Cheaper Coal.

I will claim no special virtue for us coal controllers, and I will not say that we do not strive to get the best price we can for our product. But I am entitled to assert, without fear of contradiction, that the South African community has suffered far less in recent years from any inflation in the pit's mouth price of coal than they have had to endure in regard to any other of the necessities of life. It is true to-day, as it has been practically always, that the pithead price of our coal is by far the cheapest and the coal is the best for its price in the world. I am glad to say, however, that there is another and brighter side to the picture, and that is the steadily-increasing demand which is made upon us for coal for bunkering and export oversea. The call upon us in this direction is to-day unlimited, and the pithead price is satisfactory. It would not be in your interest that I should go into details, but you may take my assurance that if we could get the railway facilities and increase our native labour proportionately (the latter being not an impossible proposition) we could very largely increase our output for oversea sales with great advantage to you Turning to the balance sheet, I will direct your attention to the fact that your property account stands as before. The item of £102,310 represents the prime cost of equipment of your new shaft and workings at Landau Colliery and its numerous requirements as a working concern. On the opposite side of the balance you will perceive a sum of £56,452, which is described as "funds transferred from appropriation account for expenditure on new equipment." This is the day of new things, and we have to conform to the new accountancy. But I doubt whether the new form is quite as intelligible as the old to the ordinary individual. What the figures mean is this. We have spent on our Landau equipment £102,310, and of that sum we have provided out of profits £56,452, so that our equipment in effect now stands in our books at considerably less than half its cost to us.

Share Investments.

Under the heading of share investments you wil observe that we hold £100,000 fully paid shares in the Cassel Clydesdale (Springs) Gold Mines, Limited, and that we have paid 2s. per share on 50,000 more £1 shares in the same company, leaving a liability to us of £15,000. Although the Cassel Clydesdale Company is a recent creation, I had perhaps better record its history for the benefit of shareholders who may not be aware of it. The Clydesdale Company and your company each held 640 acres of the farm Daggafontein, adjoining the Mynpacht of the Springs Mines Limited. The Clydesdale Company and your company put their conjoined 1,280 acres into a new company called the Cassel Clydesdale (Springs) Gold Mines, Limited. This last-named company has at present a capital of £300,000, of which £200,000 was issued to the two vendor companies in payment for their properties, each vendor receiving £100,000 chares. The remaining £100,000 was the initial working capital of the new company, and was subscribed at par by the two vendor companies, the latter paying 2s. per share, being £5,000 each, and remaining liable for the balance of £45,000 each. The object of the amalgamation of the two properties and of the formation of the company was to exploit the gold contents of the former. It is obvious from their situation that they should contain gold equally with their Springs Mines neighbours. The only difficulty was that under the old Gold Law, the Cassel Clydesdale area of mynpacht would not be sufficiently large to constitute an economically workable mining proposition. In 1918, however, a new law was promulgated, the Mining Leases Act No. 30 of that year. I had something to do with the passing of that Act, gentlemen. The new law altered the situation in that we were enabled to apply for an area increased to a sufficient degree for economic working. Arrangements were accordingly entered upon and completed for the provision of increased working capital for the Cassel Clydesdale Company up to a total of £1,462,500 in cash, for the gold mining venture. Application has been made to the Mines Department for the increased area. That has so far not been granted. The Government mill grinds very deliberately, and must not be hurried out of its official calm. That is as far as we have got for the present. In the meantime both your money and your property are intact I do not think it is necessary to refer to any other item in the accounts as they are sufficiently self-explanatory. The profits earned during the year enabled us to declare an interim dividend of 5 per cent. at 30th June last, and a further dividend of 5 per cent. at 31st December last, both of which have been paid, making a total distribution of 10 per cent. for the year.

Mr. Edwards seconded the motion and the report and accounts were adopted.

Messrs W. Ross and L. Edwards were re-elected to the directorate.

Messrs. F. W. Diamond and English and Messrs. Chas. Stuart and Roberts were reappointed auditors.

Engineering and Machinery Exhibition in London.

The second International Engineering and Machinery Exhibition will be held in London from 4th September to 25th September, 1920, and it is already known that the Exhibition will contain the finest and most comprehensive display of machine tools and workshop equipment ever seen at an Exhibition in any country at any time. About two hundred firms, consisting of members of the British industry, will exhibit, and at present, more than six months before the opening, the whole of the ground floor and two-thirds of the gallery space have been allocated. A comprehensive catalogue, which is expected to run to 350 pages, will be printed, and this will form a permanent book of reference for buyers of machine tools and workshop equipment generally. The Machine Tool Trades Association, under the auspices of which the Exhibition is being held, is the representative association of British Machine Tool Manufacturers, is exceedingly anxious that overseas buyers should have every opportunity of visiting this Exhibition. Season tickets admitting to the Exhibition on every day will be sent by the secretary to any overseas buyer who is likely to be in England during the run of the Exhibition. Engineers and others who are not themselves buyers, but who are interested in some way in the furtherance of export trade of British goods of this kind, may also receive such season tickets, for which application should be made to the Secretary, Machine Tool Trades Association, Queen Anne's Chambers, Tothill Street, London, S.W.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] APRIL 17, 1920. [No. 1490.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS. PAGE

Notes and News 147
Topics of the Week:
  Trades Union and Socialistic Disappointments ... 149
The Postmasburg Diamond Fields 151
Low-Grade Mines and the Declining Gold Premium ... 152
Dormant Companies: Some Facts and Figures 153
The Year with the Simmer Deep 155
Another Batch of "J.C.I." Annual Reports 156
Gold Premium Saves the Robinson 157
The Year with the Randfontein Central 159
The March Output in Detail 160
The Position of the Government Areas 161
Correspondence and Discussion: "West Rand Reefs"; "Dormant Companies" 162
The Week in the Sharemarket 163
Engineering Section:
  The Advantages of Railroad Electrification 165
  Boiler Tube Failure 166
  Armstrong-Whitworth in Peace 165
Trade and Industries Section:
  The Week in the Mining Material and Engineering Trades 167
Colliery Notes and News 169

Notes and News.

A Far East Rand Sensation!

The Union Government has taken a somewhat unusual step. Having learned that efforts are being made in London to raise large sums to work certain conglomerate reefs in the Heidelberg district, and that the terms of extension of the Far East Rand are being used in connection with the scheme, it points out that the geological terms applied to Heidelberg are not, in the opinion of the Government's technical advisers, warranted, and that the reefs in the Heidelberg district are parts of the Kimberley series, and do not include the Van Ryn Reef. The action of the Government is bitterly resented in some quarters and proceedings are threatened against it for damages alleged to have been sustained through its action.

* * * *

The Position at the Modder East.

Work in connection with the commencement of crushing operations by the Modder East Company at the Apex mill has been somewhat delayed by a variety of minor factors, but it is hoped to commence milling within the next ten days or so. The whole scheme is so much in the nature of an experiment that it is impossible at the moment to foreshadow the scale upon which operations will be commenced, but it seems fairly assured that a certain number of stamps will be dropping before the end of the current month. Meanwhile development is progressing satisfactorily and it is probable that a recalculation of the ore reserves will be made in the near future. This calculation will, we understand, show a very substantial increase over the last figures published.

* * * *

The Brakpan Trouble.

The men at Brakpan Mines resumed work this week, and the Board of Reference, which sat during the week, found that the men were wrong in striking. At the Council meeting of the S.A. Industrial Federation, the executive report, in dealing with the strike, stated: "So far all efforts to restore sanity and respect for the solidarity of labour have failed, and the recommendation of their own trades union branch to a return to work has been turned down. Threats have been made to pull out other mines in the district in defiance of all trade union authority, and, generally speaking, a condition of absolute chaos now threatens the trade union movement."

* * * *

A New Belgian Prospecting Company.

The Société Miniere et Geologique du Zambese has just been constituted in Brussels with a capital of 3,000,000 francs to prospect the whole of the territories of the Zambesia Mining Development, Ltd. Within a special zone the new company has the right to reserve one million hectares in ten blocks, over which it shall have the exclusive right up to 31st December, 1925, to prospect coal and bituminous deposits out of which oil and by-products can be produced, but not petroleum or iron ores. If, however, these should be discovered, then the company shall have certain special rights in connection with them. The company's capital of three million francs is divided into 30,000 capital shares. In addition, 30,000 dividend shares of no nominal value are created, each subscriber of five capital shares getting two dividend shares free. The board of directors of the company is composed of the following: Mr. Rene d'Andrimont, Mr. Georges de Bournonville (legal adviser), Mr. Jules Dapsens (engineer), Mr. Andre-Erio Gerard (engineer), General Paiva de Andrada, Major Paulis, Mr. Edouard de Roubaix (the chairman of the Geomine) and Sir Alfred Sharpe, K.C.M.G. (the former Governor of Nyasaland). Mr. Max Lohest (Professor to the Liège University) and Messrs. Paul Fourmarier and Raymond Anthoine will act as technical advisers. Within the four or five days' subscription time the capital was subscribed twice over. Mr. Gerard will leave at the end of April by the "Edinburgh Castle" with a limited staff to prepare the surveys. The other members of the expedition will follow a few months later.

Shamva Only in Its Early Youth.

A most encouraging report on the Shamva mines has just come to hand from Mr. C. E. Parsons (consulting engineer), and has, with commendable promptitude, been communicated to the shareholders in an abbreviated form. It is dated Bulawayo, February 17. Mr. Parsons calls attention to his frequent allusions to the extension of the Shamva deposits both in length and width, and says that this favourable feature continues. The whole of the south wall is worth working, and on the north everything over the second level is outside the reserves. A large proportion of the south face is profitable, especially on the east side, and the south side will yield good rock, whilst the indications on the north face are good. Mr. Parsons does not think the actual ore reserves represent anything like the life of the mine. The increased value of gold is making a great difference in the grade that can be treated. The 3-dwt. recovery is lower than any we remember previously to have known, and this gives a good profit to Shamva, whilst some of the best ore remains below the second level. The effect of the report is to induce the belief that the life of the mine will be much longer than anticipated—in fact, Mr. Parsons describes Shamva as " still in its early youth, and the company may feel thoroughly content with its outlook."

* * * *

Namaqualand Copper: Solomon Syndicate, Ltd., Properties.

Following Mr. E. M. Weston's favourable report on the properties of the Solomon Syndicate, Ltd., part of their properties including Koisabies, where pure native copper occurs, have been taken over for development and subsequent flotation by the representative of a very powerful corporation, on the basis that £50,000 is put up for the preliminary development of the 50,000 acres of copper-bearing country the syndicate owns in the Richtersveldt. The contract stipulates that the working capital of the company to be formed later will, as well as being sufficient to construct and equip a railway to serve the district, have a minimum of a further £500,000 in cash to equip and work the mines. The Solomon Syndicate will receive 30 per cent. of the total capitalization of this company, for cession of their Richtersveldt rights. The syndicate also has five other copper-bearing areas in Southern Namaqualand also favourably reported on by Mr. Weston, which will probably form the basis of another large flotation. The Cape Copper Company having distributed £4,675,450 in dividends since its inception (nearly £28 for each £1 originally invested) is evidence that Namaqualand ranks high among the payable copper areas of the world, and it would seem that the shareholders of the Solomon Syndicate are to be congratulated on their very favourable prospects.

* * * *

Falcon Mines.

Owing to the difficult conditions which existed for some time after the armistic, the report of the Falcon Mines, Ltd., for the year ended June 30 last shows, as expected, a substantial reduction in profits as compared with 1918-19, the total reported being (after allowing for debenture and loan interest) £37,700, against £75,300. However, including a refund of £50,700 excess profits duty there was a credit balance of £159,908 at the end of June, which the directors recommend should be carried forward (as compared with £101,471 brought in) with a view to accumulating a sufficient cash balance to serve as available working capital. The loan indebtedness has since the accounts were made up been reduced to £47,500, but the directors add that there is a considerable liability for income tax. In the first quarter of the current year working costs were reduced substantially and according to market rumour the company is doing sufficiently well at the current price of copper, gold and silver to hold out hope of the comparatively early declaration of an interim dividend. The ore reserves had been further reduced at the end of last September to 614,000 tons, containing copper and gold worth 47s. 1d. per ton, taking the former metal at only £50 per ton and the latter at £5 per oz. Taking copper at £100, however, the value of the ore reserves would be 68s. 4d. per ton. The development prospects of the mine in depth remain obscure, although there have been a few encouraging indications of late.

Discoverer of Lonely Reef Mine.

News of the sudden death in mail week of Mr. Jacob Palca, well-known in South Africa and London as the discoverer of the famous Lonely Reef Mine, near Bulawayo, came as a shock to a very large circle of friends. Mr. Palca has only just returned from South Africa, where he had spent a few weeks in a recuperative trip. He was a typical Rhodesian prospector for many years, and discovered the famous mine in which Messrs. Rothschilds and Messrs. Lewis & Marks were, with him, the chief controllers. The Lonely has been one of Rhodesia's treasure boxes, and proved itself a staunch dividend-payer from the very start. Mr. Palca was a most modest personality—generous and charitable to a fault, and will be greatly missed.

* * * *

Electrification of Railways.

The British Ministry of Transport announce the formation of a committee to consider and report to the Minister on the question of the electrification of railways. The committee, which met for the first time on Monday in mail week, is constituted as follows: Sir Alexander Kennedy, LL.D., F.R.S., chairman; Sir John Aspinall; Mr. A. R. Cooper, representing the London Electric Railways; Mr. Philip Dawson; Sir Alexander Gibb, K.B.E., C.B.; Mr. C. H. Merz; Sir Philip Nash, K.C.M.G., C.B.; Sir John Snell; Sir Henry Thornton, representing the Railway Companies' Association; Secretary, Major Redman. The terms of reference to the committee are: That the committee should report on—(1) Whether any regulation should be made for the purpose of ensuring that the future electrification of railways in this country is carried out to the best advantage, in regard to interchange of electric locomotives and rolling stock, uniformity of equipment, and or other matters. (2) If any such regulations are desirable, what matters should be dealt with, and what regulations should be made. (3) How far it is desirable, if at all, that railways, or sections of railways, already electrified should be altered so that they may form parts of a unified system.

* * * *

Kalahari Diamonds, Ltd.

This company has been formed in London with a capital of £80,000 in 160,000 shares of 10s. each, for the purpose of acquiring certain diamond rights in South Africa. Of these shares, 60,000 of 10s. each are offered at par for public subscription. The board consists of three gentlemen—Sir William Maxwell, K.B.E., Major-Gen. W. J. Napier, C.M.G., and Mr. William Edward Bleloch, of Johannesburg, who will be the company's representative in South Africa. He is also the vendor to the company of his rights in three contracts which he holds over the farms Kalkfontein, Sweetfontein, and Ploegfontein, Cape Colony, which cover about 12,500 acres in the diamond field of Postmasburg, about 120 miles west of Kimberley. Mr. Bleloch, while describing the enterprise as necessarily speculative, says that should even one diamond pipe be found the company's success will be great. He states that four true diamond-bearing pipes have been recently discovered in the Postmasburg district, which are now being developed by other companies, in which Sir Abe Bailey and Mr. Henry De Villiers Steytler are interested. These pipes are now yielding diamonds of fine quality. He calls attention to a second mine on Postmasburg Townlands, of which 500 claims have already been proved, and a third mine on which 300 claims have been defined. Speaking of the Makganyene mine, worked by a company of that name from Johannesburg, he says that the proved area is about 200 claims yielding about 4 carats per 100 loads, valued at £7 10s. to £10 per carat, of the finest average quality of diamonds found in any diamond pipe in South Africa. Mr. Bleloch was one of the pioneers of this mine, and is a director of the company. From all this he draws the augury that Kalahari Diamonds, Ltd., is likely to meet with similar success, as it will be " in a most favourable position to secure the first opportunity of inspecting and acquiring other discoveries that may be made outside its own immediate properties."

TOPICS OF THE WEEK.

TRADES UNION AND SOCIALISTIC DISAPPOINTMENTS.

The threatened closing down of some of the low-grade mines, owing to the decline in the price of gold, has led to a demand from Col. Creswell for another mining industry commission and to much vague talk about the nationalisation of the mines. Concurrent with this is seen a marked inclination among the rank and file of Labour to flout the leaders of organised trades unionism. In dealing with the general industrial situation this week, more particularly in reference to the Brakpan trouble, the Executive of the S.A. Industrial Federation reported that in their opinion " the period is an extremely critical one for the trades union movement. The future for labour and industry appears gloomy, and unless the utmost solidarity and reasonable measures of discipline manifest themselves in our movement, the power of our organisation is liable to crumble, and the workers as a whole will become again exposed to the dominating power of capital. Our movement can only build itself up upon experience, and if we are to perpetuate old methods which have been found futile and inefficient, and constantly repeat the errors of the past. the result must be an indefinite postponement of ' the better world ' we have been looking forward to." Not only is the attitude of the members of the trades unions giving the leaders cause for anxiety, but the failure of triumphant socialism in Europe must also be most disappointing. An illuminating article by a correspondent of the *Glasgow Herald* shows that there has been considerable disillusionment recently in Germany on the subject of socialisation. Thus Herr Johannes Finckenstein, speaking to a mass meeting of miners, said: " All my life, until quite recently, I have laboured as a faithful Marxian for the nationalisation and eventually the socialisation of our leading industries. But the economic position brought about by the War, not only in this country, but in every country in the world, has faced me with conditions upsetting every calculation we have made. There are two leading questions to which I must now give a decided negative; would nationalisation, which would be inevitably followed by socialisation, add to the happiness and material well-being of our workers? and, could nationalisation be carried out at a time when our minds are unstrung by the War, and our outlook so uncertain? " A profound impression, we are told, has been made on the advocates of nationalisation in Germany by news which has come through from Russia concerning the industrial side of Bolshevism and culminating in the remarkably frank statement attributed to Trotsky that " free labour can exist only in a capitalistic State." It has come as a shock, even to the Spartacists, that in their model proletarian State, where the capitalist has been absolutely wiped out, labour cannot be permitted freedom, that it must be placed under compulsion, and that the time of the workers, their place of abode, the scale of their remuneration, as well as the disposal of their families, must be left entirely to the discretion of the Government—a Government, moreover, not elected by the workers, and in whose policy they have neither part nor lot. Herr Hué, the president of the German Miners' Union, has something very pregnant to say on this subject: " Do not let visions run away with you. Look at Russia. There they have nationalisation, there they have socialisation. And is there any country in the world where the proletariat is more miserable and abject, worse fed, less free to enjoy the pleasures of life? The capitalists in the day of their power flogged us with whips; under Bolshevism we would be flogged with scorpions. . . . Think once and twice, my comrades, before we launch out on those uncharted seas. Let us calm down and allow reason to master us. Our victory is certain, but we cannot afford to demolish before we are certain that what we are about to build will stand the strain of all weathers." The publication of the *Russian Code of Labour Laws* has been a veritable eye opener. According to this all citizens, with certain insignificant exceptions, are subject to compulsory labour. This labour is surrounded by many palliative but by equally rigid conditions, most of which are obviously intended not to give the workman any discretion, but to secure that he unfailingly renders his tithe to the State. The laws, as the *Manchester Guardian* points out, " restrict the worker's freedom to apply, transfer, or deny his labour in a way which would certainly provoke revolution in any other country." " Another striking fact is that the 'dictatorship' of the proletariat permits private 'capitalistic' enterprises (with their inherent possibilities of profit-making) to continue to exist, while forbidding the working man to earn anything in excess of the wage allotted to the trade and category to which he belongs." The moral for organised labour on the Rand seems to be that neither in nationalisation of the mines, as preached in some quarters, nor in an open disregard of their leaders' authority is salvation to be found from the danger of restricted employment now threatening. The situation can only be relieved by increased efficiency of labour, white and black, which connotes legislative freedom for the latter to realise its full industrial possibilities.

Big Iron and Steel Deal.

It was announced recently by Sir J. S. Harmood Banner, chairman of Pearson and Knowles Coal and Iron Co., Ltd., that negotiations were in progress with a strong firm for the acquisition by the latter of the ordinary shares of Pearson and Knowles at the price of 30s. per share, ex interim dividend. Pearson and Knowles Coal and Iron Co., Ltd., was formed as long ago as 1874, and took over the properties of Pearson and Knowles and the ironworks of the two companies. Other important acquisitions have since been made, notably the whole of the share capital of Rylands Bros., Ltd., and the ordinary share capital of the Partington Steel and Iron Co., Ltd. It will be recalled that not so very long ago the authorised capital was raised from £1,900,000 to £2,500,000 in £1 shares. At the same time the £5 shares were sub-divided and £366,000 of the reserve fund was capitalised and distributed in the form of three new £1 shares for every £5 share then held. The profits of the company last year amounted to £248,141, and, with the balance forward of £85,359, there was an available surplus of £333,500. Sir W. G. Armstrong, Wentworth & Co., Ltd., are the firm referred to as purchasers, and the deal has now been satisfactorily concluded.

* * * *

Cape Explosives Works New Proposal.

A conference was held at the office of the Western Province Agricultural Society, Capetown, on Saturday, 27th March, to discuss the important question of the large scale manufacture of fertilisers in South Africa. Major Frye, representing the Cape Explosives Works, was present. Major Frye said that his company were erecting an extensive and modern plant, probably the second largest in the world, and they would be in a position to supply all the requirements of the country, and that only the best would be made: the farmers consequently need have no fear as to the results. They were proposing to manufacture not only superphosphates, but every fertiliser required by the country, basic phosphates, and a nitrogenous fertiliser separately, or high-class compounds; nitrogen it was stated had been neglected in the Western Province during the last few years. Major Frye was assured that if the fertiliser was right, and conformed to the Government analysis and the price was reasonable, he would secure the large orders which were placed overseas, orders now being given a year in advance of requirements. In reply to a question, Major Frye stated that the machinery would be landing shortly, and he hoped to have some fertilisers ready for delivery for next season, but that the works could not be brought into full operation this year. Major Frye was quite emphatic that the company could eventually cope with all the demands of the country, both as regards quantity and quality, and that the prices would compare favourably with any other fertilisers made. He pointed out that if the company had the cooperation of the farmers, the increased consumption would cause the prices to drop correspondingly.

SIEMENS BROTHERS

& CO., LIMITED.

MANUFACTURERS OF—

CABLES AND WIRES

For Electric Light and Power, Telephone, Telegraph and Signalling Purposes.

TELEGRAPHS AND TELEPHONES

Manual and Automatic.

ELECTRIC SIGNALLING APPARATUS

Luminous Engine Room Telegraphs to suit requirements.

EQUIPMENT FOR OVERHEAD TELEGRAPH, TELEPHONE AND POWER TRANSMISSION LINES

PRIMARY CELLS

Fluid and Dry.

EBONITE

&c. &c. &c.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE POSTMASBURG DIAMOND FIELD.

Some Views of the Various Properties—Development of the Postmas' Prospects and Westend Mines—Dr. Merensky Reports Favourably on the Emerald Holdings—Washing Commenced at Makganyene.

Herewith we reproduce a number of photographs illustrating various diamondiferous propositions in the Postmasburg area, which were dealt with in a lengthy article appearing in our last issue. The photographs illustrate the general nature of the country as well as the prospecting operations now in progress on certain farms. We understand that development of the Postmas Prospect and West End properties is proceeding satisfactorily. At the former property one of the pipes gives promise of being a very large one. At Westend a survey of the mine has recently been carried out and machinery for a lage test washing is now on the way to the mine. As to the Emerald properties, favourable reports have been made by Dr. Merensky and Mr. Grindley Ferris and a scheme of active prospecting on a large scale is being taken in hand. At the Makganyene mine washing with the new plant commenced on Monday last and the directors and technical advisers of the company are very sanguine as to satisfactory results being obtained. A test washing of about 3,000 loads will be made. The new plant, which is of very compact and efficient type, has a capacity of about 1,100 loads per week, and it is intended to announce results fortnightly. Recent developments have pointed to a considerable extension of the claim area of this mine and from the western section of the property very high-grade recoveries have been made. The stones produced from this mine are of exceptional value. The company has a capital of £75,000 and has purchased the property, whilst all plant, etc., has been paid for and there is a substantial balance of cash on hand.

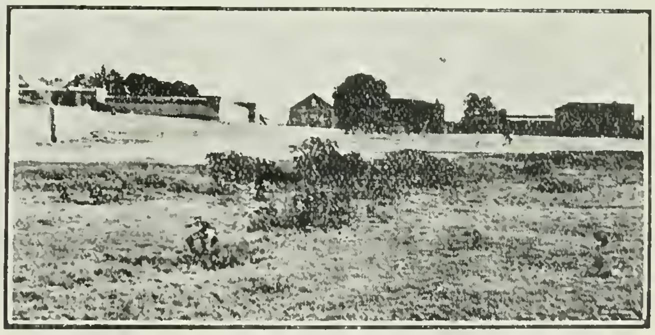
On the Postmasburg Commonage, where the Westend and Postmas Prospect Companies are Working.

The white sheds are on the Westend Property.

Workings on Waterstroomvlei (Emerald Diamonds).

The Shaft on Waterstroomvlei.

Workings on Koutwater (Emerald Diamonds)



A Scene in Postmasburg.

The Makganyene Washing Plant.

LOW GRADE MINES AND THE DECLINING GOLD "PREMIUM."

Companies which Recorded Losses last Month—Vindication of Sir Evelyn Wallers' Prophecy—The "Danger Point" Reached at Several Ventures.

With the price of gold back to practically £5 an ounce, the question of how to keep the low-grade mines of the Rand going again becomes a problem of immediate and pressing urgency. A few weeks ago Sir Evelyn Wallers, the retiring President of the Chamber of Mines, pointed out that with working costs at their present level sixteen of the mines now at work, employing about 5,800 Europeans, would, with gold at £5 per ounce, be working at a loss. In our leading article of last week we dealt at length with the gold outlook, and there is nothing new to be added to the views then expressed. But with gold down practically to £5 per ounce the danger limit referred to by the retiring President of the Chamber of Mines is at hand, and it will be of interest to see what mines are most seriously affected by the decline in the selling price of the product.

March Revenue and Profit.

Last month the revenue of the Witwatersrand mines was taken at £5 5s. per fine ounce, which is slightly in excess of the latest cabled figure, *i.e.*, 103s. per ounce. All the same a considerable number of mines worked at a loss last month. Taking the Central Mining-Rand Mines group first of all, it is to be observed that the following mines recorded losses as under in respect of last month's operations: Durban Roodepoort Deep, £2,313; East Rand Proprietary, £3,108; Geldenhuis Deep, £1,099; Village Deep, £349. If the selling value of the product be taken at £5 instead of £5 5s., the Village Main Reef, which earned only £130, would have recorded a loss, and the profit of the Knight Central would have been wiped out.

Other Groups.

Of the Consolidated Gold Fields mines only two worked at a profit, the Robinson Deep and the Sub Nigel, whilst the following properties recorded losses as under: Simmer and Jack, £3,551; Knights Deep, £375; Simmer Deep, £10,238; Jupiter, £813.

All the mines of the Barnato group worked at a profit last month, but the New Primrose earned only £785, and it is therefore obvious that any decline in the price of gold below five guineas an ounce would transfer at least one J.C.I. subsidiary from the profitable to the unprofitable side of the industrial ledger.

Three mines of the General Mining group worked at a loss, and the West Rand Consolidated, with gold at £5 5s. per ounce, earned only £100, which means that with gold at its latest figure of 103s., the West Rand Consolidated too joins the list of unprofitable companies. The losses recorded by Albu ventures last month were as follows: Aurora West, £2,491; New Goch, £3,313; Roodepoort United, £5,234.

Of the Union Corporation's three producing subsidiaries, the Princess Estates made a loss of £4,349. It will be clear from these figures that the 16 mines referred to by Sir Evelyn are no mere hypothetical ventures.

A Pressing Problem.

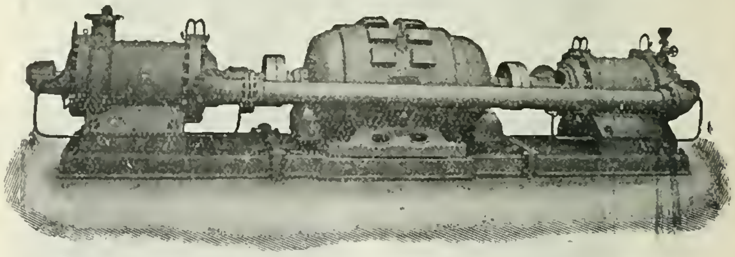
Already the question of curtailing work at some of these mines is receiving the most serious consideration. The price of gold has hardened slightly during the past few days. What its future course will be no one can say, but it is certain that the tendency over a considerable period of time will be towards normal. It is abundantly clear that the "premium" price of £5 5s. per ounce does not suffice to save numerous companies from working at a loss. Since the selling of gold in a free or open market was instituted further burdens of expenditure have been mercilessly piled on to the backs of the mines by Government, Labour, and the Banks. Unless the price of gold takes another bound upward it would seem that several of the low-grade mines will have to shut down wholly or partially in the near future. Greater efficiency and adequate supplies of coloured labour might redeem the position at some properties, but we must confess we are very sceptical as to the ability of some of the low-grade concerns to continue working, except on a reduced scale of operation.

An Ancient British Industry.

The urgent and world-wide demand for cloth lends a special interest to every industry which bears on even the minor accessories of textile machinery. It is a remarkable fact that two of these accessories, known as "reeds" and "healds," are still being manufactured for practically the whole world by British firms, some of which have specialised in this "key industry" for over 70 yeras. Extreme accuracy is required in both "reeds" and "healds" to ensure evenness in the cloth, and these firms have acquired so much skill and have introduced so many improvements in their methods of production that their position in the textile machinery world is now impregnable.

Box 3807. Tel. 5892.
WRIGHT'S ROPES
H. ALERS HANKEY - - - Sole Agent.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN
MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

DORMANT COMPANIES; SOME FACTS AND FIGURES.

Micawber-Like Ventures and Shareholders' Views—The Case for Liquidation.

A few weeks ago this journal devoted a certain amount of space to the subject of somnolent companies. This is the dormant type of company which possesses assets, land, claims, buildings, and money in the bank, but which has never yet paid a dividend and probably never will. In some instances these concerns have actually cash resources exceeding the market valuation according to the share quotation, and it would be most decidedly in the interest of shareholders to liquidate the concerns and distribute the assets. Shareholders in these concerns would benefit from liquidation, but it would seem that the directors prefer to draw their fees rather than see the company or syndicate's assets realised and the funds invested in " live " enterprises.

" Waiting for Something to Turn Up."

Most of these concerns—and unfortunately there are many of them in Johannesburg—are best described as Micawber-like ventures; in other words, they are companies with assets and claims and land, in regard to which the shareholders are for ever awaiting for " something to turn up." Considered from another point of view, such concerns are merely fruitful sources of revenue for so many somnolent directors who year after year approve of the accounts and the annual report, re-appoint themselves to the board, and continue to draw their fees.

From the unfortunate shareholders' point of view, however, this is distinctly unsatisfactory business. He would far rather have the affairs of the concern wound up, the assets sold, and the cash distributed. Numerous shareholders in concerns of this kind have expressed this view to us—we publish a letter from a gentleman so circumstanced in the correspondence columns of this issue—and we have received numerous other communications which for a variety of reasons we are unable to publish. In view of representations made and letters forwarded to us on this subject, we deal hereunder with one or two companies which it seems to us would best serve the interests of shareholders by going into liquidation and distributing their assets.

The Case of the Ryan Nigel.

There is, for instance, the Ryan Nigel Gold Mining and Estate Company. The last balance sheet and report of this company forwarded to this office gave the following particulars:

Directors: Mr. B T. Bourke (Chairman), alternate Mr. R. J. Bourke; Mr. Raymond des Clayes, alternate Mr. J. H. Keegan; Mr. B. Koenigsbert, alternate, Mr. P. C. Haviland; Mr. C. H. Dawes, alternate Mr. Evelyn W. Smith. At June 30, 1918, liabilities were £67 1s. 6d. and the balance sheet disclosed the following assets:—By property,, £86,475 7s. 2d., being portion of Farm Noyecdale No. 71, District Heidelberg, in extent 298 morgen 471 square roods, and 207 Claims thereon; Farm Tweefontein No. 268, District Pretoria, in extent 1,734 morgen 173 square roods; Farm Witfontein No. 350, District Pretoria, in extent 1,204 morgen 455 square roods; certain western portion of Farm Klipsijfering No. 353, District Pretoria, in extent 1,782 morgen 192 square roods; certain portion "C" of Farm Toitskraal No. 421, District Pretoria, in extent 817 morgen 360 square roods; Investments, £175; Buildings, balance at 30th June, 1917, £250 7s. 2d., less 10 per cent. depreciation, £25 0s. 8d.—£225 6s. 6d.; machinery and plant, balance at 30th June, 1917, £209 9s. 7d., less 10 per cent. depreciation, £20 18s. 11d.—£188 10s. 8d.; mine furniture, £10; sundry debtors, £528 19s. 8d.; stores, Tweefontein, £15 5s. 6d.; cash, National Bank of S.A., Ltd. (Natal Bank Branch), fixed deposit, £22,500, at Bankers on current account, £382 9s. 2d.—£22,882 9s. 2d.; profit and loss, balance as at 30th June, 1917, £5,106 17s. 6d.; less profit for year ended 30th June, 1918, £540 14s. 8d.—£4,566 2s. 10d.; total, £115,067 1s. 6d. Mr. B. T. Bourke, who presided at the meeting, stated:—You will note that during the year we purchased the farms "Witfontein" and portions of the farms " Klipsijfering " and " Toits Kraal," adjoining your farm " Tweefontein," and now hold in one block nearly 12,000 morgen. Dr. Wagner, who has reported on this block, states it is in the middle of a highly mineralised district, and he recommends prospecting for base metals and coal. His report lies on the table for your inspection. We have arranged for preliminary prospecting, and hope this will soon justify operations on a larger scale. No developments of any importance as far as we know have taken place in the neighbourhood of our property adjoining the Nigel. At date we have £23,000 on fixed deposit and a credit on ordinary account. During the year the company received the following moneys:—Interest, £1,006 7s. 4d.; revenue, being owner's share of licences, £450 4s. 7d.; rents, £259 8s.; dividends received, £52 10s.; credit balance, £4,566 2s. 10d. If the company went into liquidation there should be ability to pay out at least 7s. per share, apart from mineral prospects. The cash assets alone represent 4s. per share.

Tudor, Coronation Freehold, and Middlevlei.

We have also received inquiries in regard to the Tudor The Tudor Gold Mining Co., Ltd., has a registered capital of £400,000 in £1 shares, of which 340,000 shares are issued and 60,000 are held in reserve. The company is controlled by the Union Corporation. The company holds 261·5 full claims and 4 water rights on the dip of the old French Rand mine. A considerable portion of the ground lies immediately south of the old Teutonia section and the company's titles are in order. The balance sheet issued, as at December 31st, 1918, showed that the company had cash and other liquid assets amounting to £8,652 3s. 3d. and liabilities of £50 19s. 1d.. The company's funds earned £343 12s. 6d. in interest and claim licences were renewed.

Two other companies which have substantial cash assets as well as property are the Coronation Freehold and the Middlevlei Estates, and certain shareholders in these two companies consider that it would be advantageous to wind these concerns up and distribute a liquidation dividend. There may, of course, be some special reasons for not winding up the affairs of these companies. But such reasons, if there are any, are not known to the majority of shareholders, and it would be of great interest to have official statements as to why the concerns in question are allowed to drag out a weary existence year after year.

ASBESTOS
HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

SALISBURY, RHODESIA.
WIGG & JENKINS,
MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.
Gold and Base Metal Properties
FOR SALE AND WANTED.
Correspondence invited.
P.O. Box 118 Telegrams: ' WIGG."

"SHEELEY"
TUBE MILL
LINERS.

THE EFFICIENT
LINER.

Sole Selling Agents:
RINTOUL & DAVIS,
23, Cullinan Buildings,
JOHANNESBURG.

THE YEAR WITH THE SIMMER DEEP.

The report of the Simmer Deep directors for the year ended 31st December, 1919, shows that the total issue of prior lien debenture stock at 31st December, 1919, was £80,000, on which £40,000 had been called up. Owing to the suspension of the operations of the conditions relating to the redemption of the first debentures during the years 1918 to 1922 inclusive, and of the second debentures during the years 1919 to 1923 inclusive, the amounts outstanding remain the same as at the end of the previous year, viz.: £489,400 first debentures and £200,000 second debentures. It is estimated by the company's superintending engineer that the intact claim area (exclusive of approximately 40 claims, the right to mine which has been sold to the Simmer and Jack Proprietary Mines, Ltd.), at 31st December, 1919, was equal to approximately 941·5454 claims, including claim area lost through dykes and faults or unpayable under existing conditions of working, but exclusive of ground reclaimable. The year's working, even after taking in the sum of £57,615 13s. 6d., which represents the amount received and estimated to be due in respect of premium on gold won during the year, resulted in a working loss of £7,512 8s.; dividends on investments and sundry revenue amounted to £8,281 9s. 9d.—£769 1s. 9d.; deduct debenture interest and expenses, £43,120 1s.; special expenditure due to War, levies under Miners' Phthisis Act and sundry amounts written off, £3,689 7s. 4d.—£46,809 8s. 4d.; making a total of £46,040 6s. 7d.

CONSULTING ENGINEER'S REPORT.

Mr. O. P. Powell, the acting consulting engineer, writes: The results of the operations during the year 1919 are given in detail in the acting manager's report, which I herewith confirm. A comparison of the results obtained during the last four years is as follows:—1916: Tons milled, 762,700; yield per ton, 17s. 10·627d.; costs per ton, 16s. 4·859d.; profit per ton, 1s. 5·768d.; total profit on working, £56,465. 1917: Tons milled, 621,800; yield per ton, 18s. 10·557d.; costs per ton, 17s. 11·558d.; profit per ton, 10·999d.; total profit on working, £28,495. 1918: Tons milled, 516,700; yield per ton, 20s. 1·033d.; costs per ton, 21s. 1·979d.; loss per ton, 1s. 0·916d.; total loss on working, £27,872. 1919: Tons milled, 508,900; yield per ton, 23s. 4·350d.; costs per ton, 23s. 7·893d.; loss per ton, 3·543d.; total loss on working, £7,512. The above figures show an increase in costs per ton from 16s. 5d. in 1916 to 23s. 8d. in 1919. The increase though due primarily to the greater cost of white labour and stores, has been greatly influenced by the more difficult conditions under which the mine is now being worked. As an instance of this change in conditions the tonnage of reclamation ore mined in 1919 was 55,981 as compared with 201,298 tons mined in 1916. The premium on gold won was estimated to amount to £57,615 13s. 6d., equivalent to 2s. 3·172d. per ton milled, and accounts partly for the increase in the yield of 3s. 3·317d. per ton milled. Excluding this premium the value of the yield based on the price obtainable during previous years is still 1s. higher than the value obtained in 1918. This small increase in the value of the gold recovered is of course an inadequate compensation for the considerable rise in working costs of 2s. 6d. The ore reserves do not indicate that a higher recovery value can be anticipated during the current year, so that profits will depend on the amount and duration of the premium on gold. The ore reserves are estimated at 836,000 tons of fully developed ore of an average value of 5·1 dwts. per ton over a stoping width of 66 inches, and 22,000 tons of partially developed ore of an indicated value of 5·42 dwts. over a stoping width of 51 inches. As a result of the strike in December, work was partly disorganised or wholly suspended from the 6th to the evening of the 24th December, and resulted in a loss on working for that month of almost £14,000. I desire to express my appreciation of the able manner in which Mr. Macgregor has conducted the affairs of the mine in the face of the many difficulties which have arisen.

CHANGE OF NAME.

OSWALD FLETCHER LTD.
(Late S.C.H. Herbert & Fletcher Ltd.)

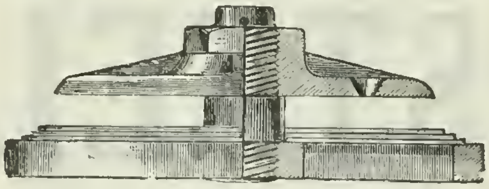
AGENTS FOR:—

BRUNTONS'—MUSSELBURGH
WIRE ROPES.

MOSES EADON & SONS LTD.,
SHEFFIELD.
STEEL, TOOLS, ETC.

BOX 2534. 1 & 2 CENTRAL HOUSE.
PHONE 4620. MAIN STREET.

KINGHORN'S PATENT METALLIC VALVES
FOR
PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.

SOLE SOUTH AFRICAN AGENTS:

GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."

ANOTHER BATCH OF "J.C.I." ANNUAL REPORTS.

Position and Prospects of the Van Ryn Deep, New Unified and Glencairn.

At the Van Ryn Deep, according to the consulting engineer's annual report, in 1919 the results, compared with the preceding three years, were as follow:

	1916.	1917.	1918.	1919.
Tons milled	532,150	517,870	530,550	570,400
Yield per ton ...	39·399s.	43·636s.	43·841s.	44·432s.
Working costs per ton	17·777s.	19·537s.	20·579s.	21·474s.
Profit per ton ...	21·622s.	24·099s.	23·263s.	22·958s.
Total working profit	£575,314	£623,991	£617,084	£654,753
Footage driven, risen and sunk	15,644	16,426	12,444	13,304
Ore reserve—tons	2,168,851	2,258,598	2,145,759	3,200,000
Value—dwts. ...	8·7	8·9	9·0	9·1

In this table gold has been taken at a value of £4·24773 per fine oz. The actual working profit for 1919 amounted to £787,408. It will be seen that there is a considerable improvement both in the quantity of the ore crushed and in the working profit for the year. The native labour has been well maintained, the average number employed underground being 2,764, an increase of 197 over the figure for 1918. The policy of sweeping and washing stoped-out areas is being actively pursued, and has resulted not only in a large addition to the revenue, but in a material lessening in the quantity of ore required from current stoping to keep the mill working at its full capacity. A large amount of development was carried out during the year, and in the central and eastern portions of the mine the reef exposures have been excellent both in width and value. The driving of No. 1 level west of the west shaft was restarted during the year in order to explore the extreme western end of the property. So far payable ore has been exposed, but it is of low grade. The ore reserves, which have been recalculated at 3,200,000 tons of an average value of 9·1 dwts. over a stoping width of 72 inches, must be considered as highly satisfactory, and with a continuance of a sufficient supply of native labour the future of the mine is most promising.

At the Glencairn, according to the consulting engineer's annual report, the clean-up was carried out at the mill site, and 815·816 fine ozs. of gold were obtained. The results obtained from the treatment of accumulated slime were not quite so good as had been anticipated, but better results are now being obtained. Approximately 110,000 tons of accumulated slime of a value of slightly over 2 dwts. remain to be treated, which will enable the company to continue work until the end of the current year. The surplus stores and practically all the plant not required have been disposed of.

At the New Unified, according to the consulting engineer's annual report for 1919, the tonnage crushed during the year was 9,500 tons less than during the previous year, but notwithstanding a further increase in the working costs this company made a working profit of £21,407 as compared with £27,880 in 1918. The sweeping and washing of stoped-out areas is being systematically pursued, and has contributed a valuable addition to the working profit for the year. Practically no development remains to be done on this mine, and the payable ore reserves, which were recalculated at the end of the year, are now estimated at 149,000 stoping tons having an average value of 6·5 dwts. over a stoping width of 47 inches.

IRON

AND

STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition: Western Union, Five Letter Edition.

ANSWERS TO CORRESPONDENTS.

All enquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to enquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"Interested."—The H. H. Gold Mine is a quartz proposition on Scandinavian Mountain, about 40 miles east from Pietersburg, and is said to be opening up most favourably.

"Krugersdorp."—As the case is still *sub judice*, we cannot comment.

"W. H. W."—(1) Yes. (2) Corner House, Johannesburg, will find him.

"Buyer" (Warmbaths).—(1) The mine will start washing about the middle of next month. (2) A promising gamble. (3) 37,000 "A" shares were issued and have to be paid out £1 and then they rank equal to remainder. The "A" shares are quoted at £1 above the others. (4) No, but will be published after results of washing are known.

Crown Diamonds.

The following is the result of March operations at the Crown Diamond Mine: No. of loads washed, 9,589; No. of carats recovered, 1,010½, being an average yield of 10·53 carats per 100 loads washed. The recoveries include an average quantity of second sortings. On account of reef, which is now in course of removal, the ground for the washing machines had to be taken from the poorer sections of the mine where the chances of obtaining big stones are far less than in the case of the more favourable sections of the pipe; the diamonds, therefore, taken as a whole, are of but moderate quality. Amongst recoveries is a 42 carat stone of the "boart" variety, and a very fine 10 carat stone valued at about £700. The total valuation of the parcel has not yet been determined. The directors have made arrangements with the management for the present rate of output to be increased, and with the discontinuance of the rains, it is hoped to put through a much larger number of loads per month than has been done up to the present.

GOLD PREMIUM SAVES THE ROBINSON.

Annual Review Shows Narrow Margin of Just Over Working Costs.

THE results of the operations for the year 1919 at the Robinson show a working profit of £22,870 18s. 5d., or 1s. per ton when calculating the value of the gold at standard price, being a decrease of £40,911 1s. 5d., or 1s. 7d. per ton, as compared with the previous year. Chiefly owing to the shortage in the native labour supply 22,300 tons less were milled; the revenue per ton was 3d. lower and working costs were higher by 1s. 1d. per ton. After allowing for the additional price received on all gold produced from about the middle of July, which is equal to a premium of 23 per cent., the working profit was increased to £76,062 2s. 2d. It will be seen from the above by what a narrow margin the value of the yield, based on standard price, exceeds the working costs. On present day costs the mine is practically dependent upon the gold premium to produce profits.

PROFITS.

To the working profit of £76,062 2s. 2d. must be added £12,924 6s., being the difference between sundry items of revenue and expenditure detailed in the working expenditure and revenue account, making a net profit of £88,986 8s. 2d. This amount, together with the balance of £288,073 7s., unappropriated at the commencement of the year, and £14,682 10s. 3d. in respect of forfeited dividends, amounts credited to capital account for sales of property and equipment, and bewaarplaats moneys received, making a total of £391,742 5s. 5d., has been dealt with in the appropriation accounts as follows: Government taxes, £12,085 4s. 10d.; dividends Nos. 54 (bonus) and 55, £206,250—£218,335 4s. 10d.; balance unappropriated at 31st December, 1919, representing cash assets, cash and investments, less liabilities, £173,407 0s. 7d.—£391,742 5s. 5d. This balance is made up as follows: Shares and interests in co-operative concerns, £4,627 5s. 6d.; stores and materials, etc., £36,779 11s. 7d.; sundry debtors and payments in advance, £8,393 15s. 8d.—£49,800 12s. 9d.; cash and investments, less liabilities, £123,606 7s. 10d.—£173,407 0s. 7d. The investments referred to above comprise the company's holding of 40,000 Crown Mines, Ltd., shares, which stand in at £80,00, having been written down to this value in previous years. As you are aware, the value of the shares is now largely in excess of the above valuation. The board has decided not to write up the valuation pending their disposal. Improved dividends were declared by the Crown Mines, Ltd., totalling forty per cent. for the year, which, on the company's shareholding of 40,000 shares of 10s. each, amounts to £8,000. During the year under review £71,456 6s. 6d. of the Union of South Africa 5 per cent. Local Registered Stock, 1921-1936, were sold, realising £73,426 11s. 11d., whilst £3,200 Mexican Electric Tramways 5 per cent. debentures, which had been written down in the company's books to £1,280 were also sold and realised £2,159 16s.

BONUS AND DIVIDENDS.

Owing to the small profits earned during the first half-year, no dividend was declared for that period out of the profits arising from mining operations of the company, but a special distribution of bewaarplaats moneys in the form of a bonus of 5 per cent., equal to 5s. per share, was made, absorbing £137,500. Shareholders will realise that this bonus is a special distribution from moneys received in 1917 from the Government of the Union of South Africa in respect of the disposal by them of the right to mine under a portion of the freehold acquired by the company some years ago, and, as the funds to meet this bonus distribution are taken out of the company's cash assets at the commencement of the year under review, the value of those assets is depreciated accordingly. The amount received to end of last year under the Bewaarplaats Moneys Application Act of 1917, is £149,394 5s. 10d., a further sum of approximately £1,500 has yet to come to the company over a period of about 12 years, thus making a total of, roughly, £153,900 to be received from this source. The transactions which gave the company this asset were made by the board in 1905 and 1909, when portions of the freehold of the company's claim property were purchased for £1,000 cash and 1,300 Crown Mines, Ltd., shares out of the company's then holding of these shares. In addition to the sum of £153,000 referred to, the company has received half the claim licences and industrial stand licences on the freehold areas purchased. For the second half-year dividend No. 55 of 2½ per cent. was declared by the directors, which absorbed £68,750, being the bulk of the working profit earned for the year. In accordance with the Trading with the Enemy Act, 1916 (Union of South Africa) the amount due to enemy shareholders in respect of dividend No. 53 and the abovementioned bonus distribution have been handed over to the Custodian of Enemy Property.

The directors' report continues as follows: The arrangements for the disposal of gold during the War period having been terminated and the necessary facilities for a free market in gold having been secured, it is now disposed of at the best price obtainable. The new method of realising gold applies to all shipments thereof since 25th July last and results in an estimated increased price of £53,191 3s. 9d. being obtained for the period ending 31st December, 1919. This amount, which is equal to a premium of approximately 23 per cent., has been credited in the ordinary way to "Gold Account" in the working expenditure and revenue account submitted. It is impossible to say how long this increased price for gold will be obtained.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P. O. Box 4047. Telegrams: "THAINE."

The consulting engineer's report is as follows:

	1917.	1918.	1919.
Tons milled	618,700	493,700	471,400
Frade of ore milled—dwts.	5·771	5·430	5·263
*Revenue	£705,107	£533,349	£501,883
*Revenue per ton milled...	22s. 9d.	21s. 7d.	21s. 4d.
Expenditure	£466,910	£469,564	£479,012
Expenditure per ton milled	15s. 1d.	19s. 0d.	20s. 4d.
*Profit...	£238,197	£63,785	£22,871
*Profit per ton milled...	7s. 8d.	2s. 7d.	1s. 0d.
Revenue from Premium on Gold	——	——	£53,191
Total working profit	£238,197	£63,785	£76,062

* Based on Standard Price of Gold.

The tonnage crushed shows a decrease of 22,300 tons compared with the previous year; this was not due to any shortage of working places, but to the insufficient native labour supply and lower efficiency now obtained. The revenue per ton was little less than for 1918, but the working costs were higher by 1s. 4d. per ton milled. It is obvious that the premium on gold is of vital importance to a mine such as the Robinson with its large reserve of low grade Main Reef ore, and that its effect is to lengthen the profitable life of the mine considerably, unless absorbed entirely by increasing costs. In consequence of the premium received, it has proved economical to mine ore of a lower grade than was profitable under former conditions. This has had an influence on the grade of ore mined, the recovery on the standard price of gold averaging 3d. per ton less than in the preceding year. Considerable expenditure has been necessary on maintenance account in view of the longer life of the mine than was formerly anticipated; both shafts have been reconditioned and the battery has been overhauled, and the plant is now in an efficient condition. This abnormal expenditure proved heavy. The policy adopted underground has been to render available all the resources of the mine so that the remaining ore may be taken out in the most economical manner; as a result it is now possible to take immediate advantage of any increase in the native labour supply, and to regulate the grade of ore mined more closely than is usually practicable in the latter stages of a mine's life. The Leader and South Reef ore remaining in the mine has been re-estimated as at 31st December, 1919, and on a conservative basis amounted to 229,400 tons—a decrease of 92,600 tons, as compared with the estimate made at the end of 1918. This decrease is very small in view of the tonnage mined from these reefs during the year, and proves the success of the policy mentioned above. The tonnage of Main Reef immediately available for stoping is still more than enough for the requirements of "make-up" tonnage, and, in consequence of the present high premium on gold, is of correspondingly greater importance. Agreements are in force with the Crown Mines, Limited, and Ferreira Deep, Limited, on our western and eastern boundaries respectively, under which we are mining and treating some of their remaining ore in localities which are not readily accessible to the companies referred to. Payment for the ore so mined is made on a scale varying with its value. The native labour supply, which was low at the beginning of the year, improved again slightly, but fell off so rapidly near the end of the year that but for the gold premium it would have been impossible to continue profitable operations. Fortunately, at the present time the labour position has again improved somewhat, but is not sufficient for our requirements. The prospects for the current year are largely dependent on the native labour supply, any improvement in which should be reflected at once in decreased costs per ton and increased profits, the maintenance of the Gold Premium at the present high rate is the most important factor in the profit outlook. Mr. G. Hildick-Smith, who was appointed Manager in February of last year, deserves congratulation on the year's operations and the present condition of the mine.

Tullis
LEATHER BELTING

THE **best possible results can only b** obtained from any type of machine when using the most suitable Belting.

"Tullis" Belting is made by the largest Belting Manufacturers in the world, with a reputation and experience extending over 80 years

It is absolutely reliable **under every condition** and in **all climates.**

No matter the position of the Drive, there is a **Tullis Belt** made to meet the requirement.

Illustrated Catalogue on Application.

JOHN TULLIS & SON, LTD.,
BELTING SPECIALISTS,
ST. ANN'S WORKS,
GLASGOW, SCOTLAND.

JOHANNESBURG.
18, TROYE STREET.

Roberts Victor Diamonds.

The result of last month's tailings washings is as follows: No. of loads washed, 20,914; carats recovered, 1,960, which is equal to 9·37 carats per 100 loads treated.

A Real Non-Skid Tyre.

Legions of inventions have been made to prevent the skidding of rubber tyres, but no one device can be said to be completely satisfactory, either in obviating side-slip or in avoiding damage to the roadway and to the tyre itself. Chains, studs, and all sorts of rubber protuberances have been tried without real success. A British engineer has, however, been working along much simpler and more scientific lines, with most promising results. His notion is to shape the tyre so that when it is in contact with the road it lies flat, with a definite edge on each side. Any tendency to skid is resisted by the squeegee action of the tyre in this position. Trials have shown that incipient side-slips are quickly checked, and that the tyre wears well, and has no bad effect on road surfaces.

Congo Mines and Minerals.

From a speech delivered by the Governor of the Congo it appears that the output of the copper mines shows a decrease in 1918 as compared with 1917, the Union Minière of the Upper Katanga having produced only 20,742 tons of copper as against 27,497 in 1917. This falling off is due to insufficient supplies of coal during the first ten months of the year, and to the epidemic of influenza, which was exceptionally severe in Katanga during November and December. The Kasai Diamond Mines produced 164,182 carats in 1918, as compared with 90,000 carats in 1917. At the price of 30·45 francs a carat this represents a value of some 5 million francs. The Société Géologique et Minière exported 274 tons of cassiterite in 1918, as compared with 103 tons in 1917. The ore, which contains 74 per cent. of useful metal and is exceptionally pure, is said to be one of the best which has been seen on the British market. The Manono mine, which used to produce ten tons a month of cassiterite, is increasing its output by a ton a month, and will shortly attain an output of fifteen tons a month. The output of the Kilo and Moto Gold Mines is increasing slightly, and rose from 3,573 kilograms in 1917 to 3,605 kilograms in 1918. The development of these mines is, however, retarded by the difficulty of recruiting labour, and of obtaining material. Seven new mineral concessions have recently been submitted for the approval of the Colonial Council, under which the concessionaires will be permitted to prospect for mines during two years in the portion of the Colony situated south of the fifth parallel of latitude, where the exclusive rights of the Société Internationale Forestière et Minière expired in 1912. Each concessionnaire will have the right to demarcate 500,000 hectares in seven blocks, in which they will have exclusive rights to prospect until 31st December, 1924. Should they discover mines within these blocks they may obtain the right to exploit them within a maximum area of 100,000 hectares.

THE YEAR WITH THE RANDFONTEIN CENTRAL.

Results Affected by Many Adverse Factors—New Pumping and Hoisting Plants—Shaft Sinking Progress.

THE consulting engineer's annual report on the Randfontein Central states: "The results for the year have not been up to expectation owing principally to the increased cost of labour and material and to the shortage of native labour, which was acutely felt during the year and especially in the last quarter. Results were also adversely affected by the heavy cost of shaft maintenance. It is, however, hoped to be able to abandon the old Robinson vertical and sub-incline shafts towards the end of this year, when the new north vertical shaft comes into commission. Good progress was made with the sinking of the new vertical shafts, the north vertical being sunk 1,595 feet to a total depth of 3,652 feet at the end of the year, and the south vertical 1,406 feet to a total depth of 3,517 feet. Sinking was somewhat delayed at the south vertical owing to water and bad ground. In addition to the footage sunk, seven main stations and waste bins were cut in the north vertical and one main station and waste bin were cut in the south vertical. It is intended to stop the north vertical shaft at a depth of approximately 4,000 feet, but the sinking of the south vertical will be continued to the full depth of 5,000 feet. The Leader and West Reefs were intersected in the north vertical shaft at the latter end of the year, and gave the following values:—Leader, depth 3,210 feet, 9.8 dwts. over 48 inches; West Reef, depth 3,560 feet, 9.8 dwts. over 48 inches. In the last annual report the intention to instal a main pumping station in the north vertical shaft was alluded to, and this station has now been cut and the pumps have been delivered and work is proceeding rapidly with their erection and with the settling pits and sumps. It is hoped to have this pumping plant in commission in April, and when the requisite connections are made to this plant a large number of small capacity pumps on the sections between Porges and Mynpacht will be thrown out of commission, thereby reducing pumping costs considerably. Elaborate experiments have been conducted on the mine with a view to determining the best method of settling the suspended matter in the water and the settling arrangements, in which the results of these experiments have been embodied, are such as to justify the hope that the water pumped will contain so little solid matter that the upkeep of the pumps will be very small. Two of the permanent electric winders, one for the north and the other for the south vertical shaft, have been ordered. These are of the Ward-Leonard type, and will be capable of hoisting a 5-ton skip from 5,000 feet at a speed of 4,000 feet per minute. It is expected that these hoists will be put to work during the first half of 1921. The necessary work in connection with the installation of the hoists, such as additional sub-station equipment, is being proceeded with as rapidly as possible. Good progress has been made with the new method of development indicated in last year's report, 4,097 feet of tunnelling in the footwall of the West Reef having been done in connection with it. The crosscut between the north vertical and the Robinson shafts at the 2,500 feet level was connected at the latter end of the year. The reef exposed in development has continued to show good and consistent values, the Leader giving 90.78 per cent. and the West Reef 84.41 per cent. payability. The ore reserves have been recalculated and are estimated at 3,802,000 tons of 6.3 dwts. over 49 inches. This includes about 250,000 tons developed by the new method, which is not immediately available."

TWO
WINNERS

DANIEL'S "SPECIAL P.P.P." PACKING

in all sizes from ¼ in. to 1½ in.

"RAINBOW" STEAM SHEET PACKING

1/32 in., 1/16 in., ⅛ in., ¼ in. thick.

CHEAPEST IN THE END.

SOLE AGENTS:

National Trading Co.,

53/56, CULLINAN BUILDINGS,
JOHANNESBURG.

Box 2762. Telegrams: "GLORIA." 'Phones 1205 & 1250

Makganyene Diamonds.

The overhauling of the plant having been completed, washing with two eight-foot pans started this week. Approximately one thousand loads will be treated weekly.

Swaziland Tin.

The following are the results of the operations of this company for the month of March, 1920: Concentrate recovered, 27 long tons; estimated profit (taking tin at £320 per ton), £1,438; less adjustments in respect of previous shipments, £1,114; net profit, £324.

Improved British Textile Machinery.

Since 1914 there has been, owing to the War, little time or opportunity for making improvements in textile machinery, but Great Britain is able to record an important advance by the invention of a combined doubling and winding machine. "Doubling" is the name given to the process of twisting two strands of cotton together. Until this invention was produced it was the custom for doubling machines to wind on to bobbins, and these bobbins were placed on winding machines which transferred the yarn on to "cheeses," or other carriers suitable for the weaving looms. By combining both operations in one machine the essential need of increased output is met with great economy of power, plant, and space. A machine with 100 spindles can be driven by an electric motor of 1½ brake horse-power.

GOLD, SILVER & COPPER ORES,
SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

THE MARCH OUTPUT IN DETAIL.

An Increase of 81,706 Ozs.—Effect of Declining Premium—Big Drop in Profits.

An increase of 81,706 ozs. was announced by the Chamber of Mines in declaring the Transvaal gold output for March. The totals for the past two months are as follow.

WITWATERSRAND

	Ozs.
March	689,645
February	607,918
Increase	81,727

OUTSIDE DISTRICTS.

February	17,412
March	17,391
Decrease	21

GRAND TOTAL.

March	707,036
February	625,330
Increase	81,706

The value of the March output, calculated on the basis of £5 5s. per fine ounce (less realisation charges), as against £5 10s. for February, is £3,711,939, an increase of £212,624 compared with the total for the shorter month. The results from all the mines were seriously affected by the fall in the gold premium and the high rate of exchange. The group profits for March amount to £759,664, being a decrease of £287,248 compared with January. There has been a further general improvement in the native labour position, the statement issued by the W.N.L.A. showing an increase of 4,374 boys.

NATIVE LABOUR.

The native labour figures for the past three months are as follow:—

	Jan.	Feb.	Mar.
On gold mines	176,390	185,185	189,561
On coal mines	12,766	12,708	12,788
On diamond mines	4,796	5,217	5,232
	193,952	203,110	207,584

COMPANY RETURNS.

WITWATERSRAND.

	Ozs.	Increase.	Decrease.
Aurora West	3,164	326	—
Brakpan Mines	21,093	1,955	—
City and Suburban	3,144	—	136
City Deep	25,317	5,750	—
Con. Langlaagte	12,329	2,615	—
Con. Main Reef	17,033	3,228	—
Crown Mines	59,402	7,812	—
Durban Deep	7,779	—	31
East Rand Proprietary	33,389	3,562	—
Ferreira Deep	11,694	931	—
Geduld Proprietary	15,990	818	—
Geldenhuis Deep	13,060	590	—
Government Areas	51,521	9,505	—
Jupiter	5,911	1,117	—
Knight Central	7,819	959	—
Knights Deep	16,194	—	275
Langlaagte Estate	11,284	3,738	—
Luipaardsvlei	4,627	897	—
Meyer and Charlton	8,149	231	—
Modder B.	23,396	2,136	—
Modder Deep	23,512	2,076	—
New Goch	3,401	725	—
New Heriot	3,165	—	13
New Kleinfontein	14,100	456	—
New Modder	46,206	3,868	—
New Primrose	3,697	280	—
New Unified	2,896	394	—
Nourse Mines	15,106	2,469	—
Princess Estate	5,418	1,051	—
Randfontein Central	40,712	5,673	—
Robinson	9,191	750	—
Robinson Deep	17,207	687	—
Roodepoort United	4,957	768	—
Rose Deep	14,680	2,190	—
Simmer and Jack	10,941	—	385
Simmer Deep	9,416	—	734
Springs Mines	17,524	3,358	—
Van Ryn Estate	8,511	84	—
Van Ryn Deep	28,385	4,169	—
Village Deep	13,823	2,471	—
Village Main Reef	5,106	419	—
West Rand Consolidated	9,067	1,887	—
Witwatersrand	10,371	1,616	—
Wit. Deep	8,554	637	—
Wolhuter	8,974	640	—
Miscellaneous	2,205	321	—

OUTSIDE DISTRICTS.

	Ozs.	Increase.	Decrease.
Sub Nigel	6,058	526	—
Barrett	201	78	—
Glynn's Lydenburg	1,197	145	—
Transvaal G.M. Estates	5,958	216	—
Miscellaneous	3,977	—	986

GROUP PROFITS.

	Jan.	Feb.	Mar.
Central Mining	£178,259	£265,731	£341,691
Barnato	290,567	174,380	241,002
Gold Fields	41,991	55,458	12,505
General Mining	41,891	23,628	19,158
Mines Selection	79,004	53,866	53,336
Union Corporation	115,200	101,429	91,972
	£1,016,912	£674,492	£759,664

Rhodesia Consolidated.

It will be remembered that during the past two years a number of shareholders of the Rhodesia Consolidated, Ltd., urged that a more active policy should be adopted in regard to the company's business and the development of its assets. With this object in view the board was recently reorganised and the offices of the company removed to Finsbury Pavement House, E.C.2. An interim report just issued by the new board states that the cash, loans and good debts due to the company exceed £40,000. The directors are, however, of opinion that the active policy advocated, and to carry out which they have come into office, make it desirable to augment the liquid working capital, and it is therefore hoped at an early date to propound a scheme for placing the unissued capital, amounting to some £100,000 in 10s. shares. The company's holdings in producing properties are a 40 per cent. interest in the Asp Mine, which is under option to a wealthy tributing syndicate, and will probably be sold at a price which will add largely to liquid resources, and 65,380 shares in the Falcon Mines, Ltd.

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record*. In January, February, March, 1920, we secured 13 out of 19 Certificates in S.A.

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

THE POSITION AT THE GOVERNMENT AREAS.

Government's Share of Profits £621,341—Points from Annual Reports.

The revenue of the Government Areas in 1919 was: From gold, £2,667,603 15s. 3d.; from other sources, £16,519 10s.; total, £2,694,123 5s. 3d.; balance from last account, £271,885 18s. 2d.; making a total of £2,966,009. The expenditure was: Working costs and general expenses, £1,130,728 13s. 4d, (including miners' phthisis contributions of £9,418 14s. 2d., under 1919 Act); dividends Nos. 4 and 5, £525,000; Miners' Phthisis Sanatorium, £540 8s. 11d.; Miners' Phthisis Board (under prior Acts), £793 5s. 10d.; Income Tax and special levy, £12,387 4s. 9d.; Provincial Gold Profits Tax, 1918 and 1919, £18,957 3s. 6d.; donations, £3,721 6s. 6d.; share of profits to Government, £621,341 17s. 7d.; total, £2,613,470 0s. 5d.; balance unappropriated, £352,539 3s. The increase of over a shilling per ton crushed is attributable in the main to increased wages and to higher contributions under the Miners' Phthisis Act of 1919. Stores still remain high in price, but they are more readily obtainable, consequently it was possible to reduce the stock carried on the mine by £77,339 as compared with the year 1918. The question of the company being liable for taxation under this Act was submitted to counsel for opinion, with the result that the directors were advised that, notwithstanding the existing agreement with the Government, the company could not claim exemption, consequently the amounts estimated as due for the years 1918 and 1919 now appear in the accounts submitted. During the year an amount of £22,540 was expended under the head of capital expenditure, the main item being £14,769 for additional dwelling houses, and the balance on plant.

Consulting Engineer's Annual Report.

Mr. W. L. White, the consulting engineer, in his annual report, writes: The returns from the mine for the year 1919 again show a further improvement on previous years. The following comparative figures summarise the position over the last four years:

	1916.	1917.	1918.	1919.
Tons milled	744,000	1,298,000	1,303,500	1,361,000
Yield per ton ...	27·117s.	29·748s.	33·181s.	35,676s.
Working costs per ton	21·615s.	19·056s.	19·735s.	21·025s.
Profit per ton ...	5·502s.	10·692s.	13·446s.	14·651s.
Total working profit	£204,688	£693,916	£876,327	£997,017
Footage driven, risen and sunk	32,998	38,219	41,640	37,321
Ore reserves—tons	4,930,000	7,016,000	9,445,000	11,001,700
Value—dwts. ...	7·2	7·5	8·0	8·6

In the above table the value of the gold is taken at £4·24773 per fine oz. right through. The real working profit in 1919 was £1,246,875. Working costs continued to rise during the year owing to higher payments for stores and labour, and to contributions under the Miners' Phthisis Act of 1919. Development results were very satisfactory. Of the total footage on reef, 17,140 feet (or 64·7 per cent.) was payable and averaged 17·4 dwts. over 50 inches, as compared with 17,230 feet (or 73·6 per cent.) averaging 16·1 dwts. over 43 inches in 1918. The ore milled from development points was 193,556 tons, being 14 per cent. of the total tonnage milled. There is an increase in the ore reserves to 11,001,700 tons of an average value of 8·6 dwts. over a stoping width of 77 inches. The accompanying plan will show that the conservative policy in estimating the block areas is being continued, and that the ore reserves are widely distributed. The average number of natives employed underground was 5,413 as compared with 4,907 in 1918. The efficiency of the native labour force, and of the underground work generally, showed improvement throughout the year. Speaking generally it may be said that the mine is in a thoroughly sound and satisfactory position.

'Phone 4673. Box 3162.

OSBORN'S
DRILL STEEL (solid and hollow).
TOOL ,,
ALLOY ,,
SPRING ,,
SHAFTING ,,
PLATE ,,

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
"DALY" TAPPETS.
TRUCK WHEELS & AXLES.

"TITAN" MANGANESE STEEL.
CRUSHER SPARES & MORTAR BOX LINERS.

MUSHET HIGH SPEED STEEL.

Files, Shovels, Saws, etc.

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

PERSONAL.

Mr. W. S. Saunders, director of the "C.M.S." group of companies, has returned from a recuperative holiday at the coast.

* * * *

Lt.-Col. H. L. Templer is severing his connection with the Rand to enter into consulting practice in London with Col. H. H. Johnson, the well-known consulting mining engineer.

* * * *

Major H. M. Bellamy, M.C., D.S.O., O.B.E., who lately returned from North Russia, is on a special mission to South Africa on behalf of the Surplus Disposal Board of the Ministry of Munitions. Major Bellamy spent many years on the Rand before the War, in which he greatly distinguished himself.

British Wireless Telephony Up-to-Date.

After the signing of the Armistice the British authorities established a postal aeroplane service to Cologne, and in connection with this service systematic use was made of wireless telephony. Wireless telephone stations were placed on the ground, at distances of 50 miles from each other, and with the use of quite small sets were able to transmit messages to aircraft up to 30 miles away. They could also receive from the air to about 50 miles. Frequently these distances were exceeded, and an aeroplane was in communication at one and the same time with three stations. Considering the small size of the apparatus employed, these were remarkable results, and testify to the rapid progress made by the British air service since the first trials of wireless telephony to aeroplanes in 1915.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Dormant Companies.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—In your issue of November, 1919, and the issue of the 28th February you had articles on the above subject, and I understood at a later date you would publish a list of moribund and dormant companies with actual cash resources showing that they exceed the quoted valuation of the shares. I have been waiting to obtain this information, as I am concerned in two or three of these concerns, and cannot get a satisfactory reply from either directors or secretaries. It would be as well if you were also to publish the names of the directors of these dormant companies who refuse to liquidate and pay shareholders out, but evidently prefer to hang on so long as there are funds sufficient to pay their directors' fees. Would it be possible to bring this disgraceful state of affairs before the Minister of Mines in order to protect shareholders? The annual general meetings are nothing but a farce, for the simple reason that the notices sent to shareholders never reach them, the meetings are not advertised in the papers and are merely attended by these honourable directors who vote themselves fees for having done nothing. I have not seen the proceedings of any of the meetings reported in the Press or a list and value of the assets ever mentioned, and yet some of the shareholders know quite well that, if these were realised and the concerns liquidated, quite a decent amount could be paid to them. One naturally looks to your journal as the mining paper of the country for information and protection, and I sincerely trust for the good name of South Africa that you will take this matter up. Many friends of mine in England are shareholders in concerns that could pay out as much as from 6s. to 10s. per share if liquidated, but for years past nothing has been done, though the directors' fees and secretary's salary are regularly paid. Personally, I think these people should be prosecuted.—Yours, etc.,

E. M. EUSTACE.

Capetown,
April 9th, 1920.

[The matter is dealt with elsewhere in this issue.—Ed.]

West Rand Reefs.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—No doubt Mr. F. Kumst, in his letter which appeared in your last issue, means quite well by "Krugersdorp" in tracing the Main Reef series through the town, underlying Luipaardsvlei and the West Rand Consolidated Mines, but in my opinion it is a very doubtful compliment to the Dorp, as Main Reef series has gone out of fashion of late years, and the orthodox "one reef theory," with a shale footwall, substituted. Would not the Black Reef (on which half the rich mines of the Far East Rand are working) have suited the situation better, if the above-named companies, which are working in the top beds of the series, could only be persuaded to use common sense and sink a few fathoms for it, with the shale footwall, as I have begged of them times out of number? What Mr. Kumst designates the "red bar" of the Main Reef is merely part and parcel of Black Reef footwall shales, etc., and can be traced, more or less, as he observes, from the bend in the railway north-east of Roodepoort to Krugersdorp West, etc.

On Randfontein they are working five payable reefs, and on Luipaardsvlei and West Rand Consolidated only three, as far as I am aware. Where, then, are the other two rich reefs? Under them, of course!

Black Reef, on that line of Black Reef series, was opened and milled on Gray's Mynpacht in the early days of the Rand, and from there on to Randfontein boundary it has been ignored and unrecognised ever since—partly for the reason of its being covered with surface soil, but principally for lack of knowledge of stratigraphy displayed by map-making doctors of geology, who had, and still have, the Witpoortje break microbe on the brain, contracted by reading and believing Goldman's book of the year 1, written with more objects than one at the time, as we old pioneers have reason to remember to our cost. I quite think, now that the old order of things is changing, that Mr. Kumst's prophecy as to the future of Krugersdorp, even if half the Rand was shut down, will come to pass. It will not be imaginary Main Reef series, though, that will make it, but rather a series of small mines springing up in the district, worked on Rhodesian principles, with laws suitable to the same. It may be a consummation seemingly impossible in a country imbued with deep-level ideas, requiring millions of capital, etc., but it is possible, all the same, now that we have a new kind of Government in power, as foretold in my last epistle to your valuable journal.—I am, etc.,

SCOTT ALEXANDER,
"Rand Stratigraphist."

Johannesburg,
April 13, 1920.

THE POSTMAS PROSPECT WORKINGS.

THE WEEK IN THE SHAREMARKET.

Relapse Followed by Recovery—Diamonds and Tins Quiet.

The local market, which has evidenced signs of considerable weakness ever since the gold "premium" turned and the banks increased realisation charges, relapsed to the lowest levels touched for months on Tuesday. New Modders, for instance, were sold at 68s. 6d., Modder B's at under 130s., and Modder Deeps at 41s. Various factors contributed to this set-back. Heavy selling by French holders, the decline in the price of gold to 102s., bank restrictions on credits, and the dangerous situation in Europe all had a depressing influence on prices. The liquidation of a large deceased estate is also understood to have affected local prices. On Wednesday morning there was a general improvement, and the prices of Far East Rand dividend payers responded readily. On Thursday the market was firm and quotations were well maintained. Diamond stocks have had an uneventful week and no advances or declines of note are to be recorded. Tins have been dull, but Leeuwpoorts are firmer on rumours of a new method of recovery. Oils are uninteresting and industrials have suffered with the general decline in the market, but at the moment of writing are firmer.

	Fri. 9th.	Sat. 10th.	Mon. 12th.	Tues. 13th.	Wed. 14th.	Thurs. 15th.
Anglo-Am.Corp	41 0*	40 6*	40 6	38 0*	—	40 0*
Apex Mines	6 9*	6 9	8 0*	6 0*	6 0*	6 6†
Aurora Wests	—	6 0†	—	—	—	—
Bantjes Cons.	—	3 0*	3 0	2 6*	2 6*	2 9*
Blaauwbosch Dmds.	—	80 0†	—	80 0†	—	—
Brakpan Mines.	66 0†	65 0†	60 0*	57 6*	62 6†	57 6*
Breyten Collieries.	—	8 0*	—	8 0*	8 0*	9 0†
Brick and Potteries.	4 6*	4 6*	4 6*	4 6*	—	4 6*
Bushveld Tins	1 6*	1 7*	—	1 6	1 4*	1 6*
Cassel Coals	30 0*	30 0*	30 0*	30 0*	30 0*	—
Cinderella Cons.	7 0†	6 9†	7 0†	6 6†	7 0†	6 9†
City and Subs.	6 0	5 6	6 0†	5 0*	5 9	5 9*
City Deeps	56 0†	56 0†	55 0†	53 0†	52 0	59 0*
Clydesdale Colls.	—	22 3*	—	21 0*	22 0*	22 6*
Con. Diamonds	41 6*	40 0*	40 6*	40 0	40 0	39 6*
Con. Investments	—	—	30 0†	—	—	27 6†
Con. Langlaagtes.	23 0†	—	19 0*	17 0*	—	18 0*
Con. Main Reefs	11 3*	11 3	11 0	9 9	11 0*	11 9
Con. Mines Selection	30 0*	—	31 0†	—	28 0*	28 0*
Coronation Freeholds.	1 7	1 9	1 7*	1 6*	1 8*	1 6*
Crown Diamonds	12 3	12 0	11 6*	11 0*	12 0	11 9
Coronation Syndicates	—	15 0†	—	15 0†		—
Crown Mines	—	—	—	60 0†	55 0*	—
Daggafontein Mines	16 0*	16 6*	16 6*	16 6	—	—
Do. Opts. (4 yrs.)	0 9	0 9*	0 9*	0 8*	0 9*	0 9*
East Rand Coals	2 3*	2 6†	2 6†		2 3*	2 3*
East Rand Deeps	0 9*	0 10*	0 10*	0 9*	0 10*	0 10*
East Rand Props.	8 6*	9 0	8 6	6 9	7 6	8 9
East Rand Debs.	£71*	£73†	—	—	—	—
Eastern Golds	1 1*	1 0*	1 0*	1 0*	1 0*	1 3
Ferreira Deeps	—	—	—	10 0†	7 6†	8 0†
Frank Smith Dmds.	15 6	15 10½	15 6	14 3b	15 3	15 3
Geduld Props.	46 3	46 6*	46 6	45 0	45 9	46 0
General Minings	7 9†	—	—	—	7 9†	—
Glencoe Colls.	4 6*	—	—	—	4 6*	—
Glynn's Lydenburgs	17 0†	—	10 0*	16 0†	15 0†	15 0†
Govt. Areas.	90 0	88 0	87 6	85 0*	87 6	88 0*
Hume Pipes	27 0†	24 0	24 6	22 6*	24 0*	—
Jhb. Bd. of Ex.	—	—	—	36 0*	36 0*	36 0*
Jupiters	4 6	4 0	3 9*	3 0*	4 0	4 6
Kaalfonteins	0 8†	—	—	0 7*	0 7*	0 7*
Klerksdorp Props.	2 3*	2 3*	2 3*	2 3*	2 3*	2 3*
Knight Centrals	4 9*	4 9	5 0†	—	4 6	4 9
Lace Props.	13 0*	13 0*	13 0	12 0	13 0	12 6
Leeuwpoort Tins	28 0	26 0*	26 0	24 0	25 9	25 0*
Luipaardsvlei Est.	—		5 0†			5 0†
Lydenburg Farms	7 4	7 0*		7 0	7 3	7 3*
Meyer and Charltons	90 0*	90 0*	90 0*	—	—	90 0*
Middelvlei Est.	1 6*	1 6*	1 6	1 8*		1 8*
Modder B.'s.	133 9	133 9*	132 6	126 6*	132 6	135 0*
Modder Deeps	48 0	47 9	46 9	44 0	46 3	48 0
Modder Easts	24 7½	25 0	25 0	24 3	24 9	25 1½
Do. Opts. (3 yrs.)	4 0	4 6	4 3	4 0	4 3	4 4*
Do. Opts. (4 yrs.)	8 3a	9 5	9 1*	9 1	9 4	9 9
Natal Navig. Colls.		23 6*		23 6*	24 3*	24 0*
National Banks	270 0†	—				265 0†
New Boksburgs		1 10†	1 9*	—	1 9†	1 0*
New Eland Dmds.	70 0*	70 0*		70 0*	70 0*	72 6*
New Era Cons.	9 0	9 0*	10 0†	8 6*	9 0*	
New Geduld Deeps.	2 1*	2 1*	2 0*	2 0*	2 3†	2 0*
New Kleinfonteins	10 0*	10 6	10 0	9 0*	9 3	10 0
New Modders.	70 0	71 9	70 3	68 6	70 3	71 6
New Primrose						4 6†
New States	26 0a	26 6*	26 0	25 0*	25 6*	26 9
New Unifieds	7 0†	7 0†		—	7 0†	6 6†
Nigels	—			—	—	7 6*
Nourse Mines	12 0*	—	11 0*	13 0†	11 3*	11 3*
Pretoria Cements	91 0*	92 6	92 6	93 0	93 6	94 0*
Princess Estates	—	2 3†	1 6a	1 9*	1 9*	2 0†
Rand Nucleus	1 6*	—	2 0†	—	—	—
Rand Select. Corp.	86 0*			85 0†	82 6	82 9
Randfontein Deeps	7 0†	—	6 9†	6 9†	7 0†	5 6*
Randfontein Est.	20 3	20 9	20 0	18 0*	19 3	20 3*
Roberts Victors.	15 0	15 0	15 0	14 6	14 9*	14 9
Rooibergs	9 3*	10 0	10 0	9 36	9 6	9 6*
Roodepoort Uniteds.	5 0†	5 0†	4 9†	4 3†	4 0†	4 6†
Rouxvilles	22 6†	21 6*	21 0	20 3*	20 0*	20 6*
Ryan Nigels	3 9†				—	—
Shebas	3 0†	3 0†			—	—
Simmer Deeps	3 0†	1 6*		3 0†	2 6†	2 6†
S.A. Alkali	21 0*	21 0*	22 0†	22 0†	21 6†	19 0*
S.A. Lands	5 3*	5 3*	5 3*	5 0*	5 1	5 1*
S.A. Townships	13 6*	13 9*	13 6*	14 0*	13 3	13 0*
South Van Ryns	9 0*	9 0*	9 0*	9 0	9 0	8 9
Springs Mines	48 0*	48 3*	47 0	45 0	46 3	48 3
Sub-Nigels	—	15 9	15 3	15 0†	15 0	14 9*
Trans. G.M. Est.	13 6*	15 0†	15 0†	14 0†	13 9†	14 0†
Transvaal Silver	49 6	48 6*	50 0	47 0*	50 0†	50 6
Do. Options	30 3*	29 0*	30 6	29 6a	30 0	30 9*
Tudors	1 2†	—	—	—	—	—
Van Dyks	3 0*	3 4*	3 3*	3 6†	3 3	3 9†
Van Ryn Deeps	90 6*	90 0	87 6*	80 0*	87 6	87 0*
Victory Monarchs	—	—		—	60 0†	—
Village Deeps	15 0†	14 0*	14 0*	13 6	14 0†	14 0†
Village Main Reefs.	—	8 0†	—	—	—	—
Western Rand Est.	6 0*	—	5 3*	5 6†	5 3*	5 6*
West Springs	16 6*	18 3	18 0	17 0	18 0	18 9
Do. Options	3 6	3 6*	3 6*	3 3*	—	3 6*
Witwatersrands	—	—	—	—	—	18 0†
Wit. Deeps	10 3*	10 0*	10 0	9 6	9 0	9 0*
Wolhuters	4 0*	4 6	4 3	4 3	4 4*	4 9*
Zaaiplaats Tins	10 3	10 2	10 0*	9 8	9 6	9 6
Union 5 per cent.	£102	£102	£101¾*	£101⅞	£102⅛	£102⅛*

*Buyers. †Sellers. AOdd lots. BEx London.

British East Africa: Currency Adjustment Scheme.

An important acceleration and amplification is announced by the Colonial Office in the scheme which was published in the *Journal* on 19th February for the stabilisation of the rate of exchange between the East Africa and Uganda Protectorate and the Tanganyika Territory, and the United Kingdom. The original scheme provided for a transitional period, during which Imperial Treasury and Bank of England notes (at present legal tender in East Africa at the rate of Rs. 8.50 to the pound sterling), should be legal tender at the rate of Rs. 9.25 to the pound sterling. At the end of this transitional period the rate was to be stabilised at Rs. 10 to the pound sterling. The effect of the announcement of the above proposals has, however, been that the sterling rate of exchange of the rupee in East Africa has already been fixed by the banks at 2s. for homeward and 2s. 2d. for outward remittances. It has thus become possible, without further hardship to anyone, and with advantage to the importer of capital into East Africa, to stabilise the rate of exchange on the basis of Rs. 10 to the pound sterling forthwith, and to dispense with the transitional period. Steps are being taken to introduce immediately the legislation necessary to bring about this result, and to make British Treasury and Bank of England notes legal tender at the rate of Rs. 10 to the pound sterling without further delay. This arrangement will involve the cancellation of the measures already taken providing that, for the repayment of debts contracted before 21st November, 1919, British Treasury notes and Bank of England notes should be legal tender at the rate of Rs. 9.25 to the pound sterling from the present time until the end of the transitional period.

HEAD, WRIGHTSON & CO. (South Africa), Ltd.

P.O. Box 1034. JOHANNESBURG. Telephone 3524.

SPECIALISTS IN

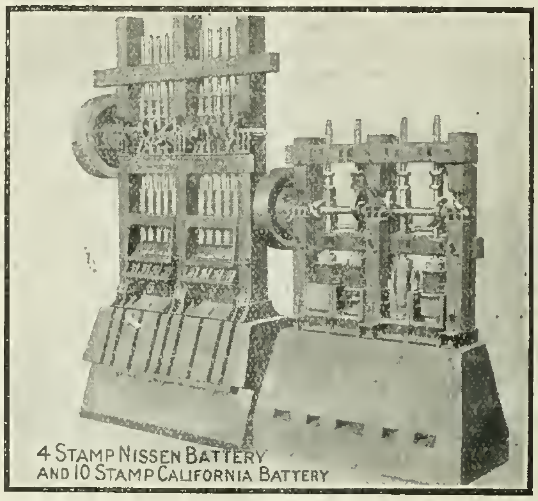
MINING MACHINERY, COAL HANDLING PLANT, STRUCTURAL STEELWORK, ETC.

SOLE MAKERS OF THE

"NISSEN STAMPS."

Efficiency and Economy.

These Stamps are now installed in all the latest Mills in the Transvaal and Rhodesia.



4 STAMP NISSEN BATTERY AND 10 STAMP CALIFORNIA BATTERY

THE

STRAITS TRADING COMPANY

LIMITED.

HEAD OFFICE **Singapore**
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—

THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF

TIN ORE CONCENTRATES OF ALL GRADES

FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—

THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

ENGINEERING SECTION.

THE ADVANTAGES OF RAILROAD ELECTRIFICATION.

The world-wide shortage of coal during the great war has emphasized more clearly than ever the necessity of fuel economy in industry, while the present shortage of labour and the certainty of its continuing scarcity throughout the reconstruction period forms another most serious problem. But fortunately we have at our disposal a means that will greatly assist in alleviating both of these conditions, namely—electrification, says F. H. Shepherd, Director of Heavy Traction, Westinghouse Electric and Manufacturing Company.

The use of electricity in industry saves both fuel and labour. This fact is recognised throughout the world to-day, and in order to secure these advantages, practically all of the nations are now considering plans for the electric generation of power. In England, Belgium, and France, among other nations, these plans are being prepared by official commissions, so that a tremendous activity in electrical power development may be expected with the stabilization following the advent of peace. In all cases the ideal in view is a broad one: To use electricity for all possible power purposes, including railroad operation.

The operation of the railroads will naturally form an important part of any programme of general electrification, for in almost every country the railroads form one of the largest users of fuel and labour. Nor are the advantages obtained from railroad electrification limited solely to economy in fuel consumption and the more effective use of labour. Among others, the following can be mentioned:

1. Greater speed of movement for the heaviest trains, due to the fact that electric locomotives can be made much more powerful than the largest steam locomotives.
2. Greater nicety of control.
3. Increased traffic capacity of existing tracks, terminals, grades, tunnels, and other points of traffic restriction because when electricity is used, heavier trains can be operated at higher speeds and less time is consumed at terminals and in yards..
4. Operation where the use of steam is objectionable, as in long tunnels.
5. Independent of weather conditions, since the electric locomotive is not affected by cold weather.
6. More reliable operation, as proved by the statistics of all existing electrifications.
7. More effective use of all rolling stock, due to more expeditious movement of traffic.

These are some of the advantages that are now being obtained for the mere substitution of the electric locomotive for the steam locomotive, but they by no means tell the whole story.

Consider electric illumination. When first introduced the electric lamp supplanted a gas or an oil light because of certain advantages it possessed, and at first it occurred to no one that it would ever do much more. But the electric lamp has within thirty years revolutionized illumination, and has given us our light-flooded factories, with their greatly increased production and safety, and our wonderfully illuminated city thoroughfares as well.

The industrial electric motor is another case in point. At first it merely took the place of a steam engine in the factory. To-day, practically every machine has its own motor of specially selected characteristics, and feats of production are now possible that were undreamt of a generation ago.

A further example is the growth of our great city and inter-urban electric transportation service of to-day from the substitution of the electric motor for the horse on street cars.

In other words, an electrical method will in the beginning take the place of an older practice because of some economic superiority. Then, its almost unlimited inherent possibilities are developed and in time results are accomplished that would be impossible at any cost with the older methods.

There is good reason to expect that the electric operation of railroads is capable of a similar development and will in time revolutionize our present transportation methods and provide us with services we know little or oothing about to-day.

Conditions in the United States.

Since the United States has an abundance of coal, railroad electrification has been determined solely by local conditions. Passenger terminal problems caused the electrification of the New York Central Railroad at New York and the Pennsylvania at New York and Philadelphia. The limitations of the steam locomotive determined the electrification of the Baltimore tunnel on the Baltimore and Ohio Railroad, the Cascade tunnel on the Great Northern, the St. Clair tunnel on the Grand Trunk, the Hoosac tunnel on the Boston and Maine and the Detroit River tunnel on the Michigan Central roads. Examples of electrified railroads with freight as well as passenger service are the Norfolk and Western, the Chicago, Milwaukee and St. Paul, and the New York, New Haven and Hartford.

While the other electrifications are successful and interesting, the last three are more properly representative of general railroad electrification. The Norfolk and Western is an example of electrification under the heaviest conditions of freight traffic on a mountain grade. The Chicago, Milwaukee and St. Paul has in operation the longest continuous mileage in the world, and when completed will cross five mountain ranges. The New York, New Haven and Hartford has a very large movement of both freight and passenger traffic. All three installations are successful and profitable and, when financial conditions are stabilized and the American railroad question settled, it is expected that all three will extend their electrified service.

In addition, there are sections of railroads about the United States where the present congestion of traffic or the availability of water-power warrants the early adoption of electric power. These possibilities alone promise under normal conditions of finance (as no engineering problems now remain to be solved) extensive activity in the electrification of railroads for many years to come.

Conditions Abroad.

Differing from the United States, European and South American countries with the exception of England alone, lack an adequate supply of fuel, but many of them, including Norway, Sweden, Switzerland, Italy, Spain and Brazil, have large amounts of water power, while France has a moderate amount. These resources combined with the high cost of fuel make extensive railroad electrification in these countries inevitable sooner or later.

The neutral countries will probably be the first to undertake this work, Switzerland having a programme covering a term of years well established, while both Norway and Sweden are giving active consideration to definite projects. In England a considerable amount of electrification is in contemplation along with the general plan for the electrification of industry.

A French Commission, composed of Government and railroad engineers, has already visited the United States in order to become thoroughly familiar with American practice. The Italian Government will continue its definite programme as soon as financial conditions permit. An official Belgian Commission is already planning to rehabilitate with electric power at least a portion of the railroads destroyed by the Germans. In Spain, Brazil and South Africa as well railroad electrification is under active consideration.

It is evident, therefore, that the next decade will see a large amount of railroad electrification in almost every quarter of the world.

Centrifugal Castings.

A new process has been introduced recently whereby certain engine details of iron and of non-ferrrous metals can be cast by a centrifugal method, the molten metal being introduced into a die which is rotated at a high speed. It is not necessary for the outer part of the casting to be strictly cylindrical, and this enables the method to be utilised for a great number of pieces for which other processes are not so suitable. As examples of goods which can be cast in this way may be mentioned turbine glands, piston ring pots, motor car sleeve valves for Knight engines, and various Diesel engine parts, such as engine liners.

There are metallurgical as well as mechanical advantages in the adoption of this method which will be appreciated by engineers. Amongst the mechanical advantages may be mentioned the absence of cores, gates, runners, risers, and feeder heads the ease and rapidity of production, the absence of fettling and the reduction of machining allowances to very small limits. With regard to the metallurgical advantages, it may be mentioned that the rapid rotation ensures quick cooling by which the grain on the outer side is very close, while impurities tend to segregate on the inner surface. This is particularly the case with slag, manganese, and sulphur. For piston rings especially the very fine crystalline structure, and the fact that the free carbon exists in a very finely divided condition, tends towards the production of extremely good rings. One of the most appreciated qualities is the soundness of the castings due to the absence of blowholes. The metal mould is filled with molten metal by consecutive layers, which are easily applied parallel to the axis of rotation, and with the absence of cores there is no danger of the formation of blow-holes or contraction cavities, and the castings are therefore absolutely sound. This process is being worked by the Stokes Castings, Ltd., Mansfield Nott., who hold the patents, and this company is supplying numerous others with engine parts and accessories.

BOILER TUBE FAILURE.

Speaking before the last meeting of the South African Institution of Engineers, Mr. T. G. Otley described an interesting case of boiler tube failure. He said:

Under the heading of failures I propose to describe and exhibit an interesting case of a tube burst in a water tube boiler. The tube in question was in a bottom row, and was 3¼ inch outside diameter and No. 7 gauge. This is the usual gauge for a bottom-row tube. It will be observed that the tube has opened out for a length of about 10 inches, and as a result of the burst a large proportion of fire was blown out of the furnace and the boiler house was filled with smoke and steam. Unfortunately three natives were scalded and one died. Owing to the presence of mind and nerve of the fireman, the boiler was isolated in about 40 seconds. If this had not been done the other boilers steaming would have fed back through the burst tube.

The failure is of more than usual interest, in so far as it very clearly illustrates a theory which I have held for some considerable time. When the burst occurred the furnace was fired with a high-quality Witbank district pea coal with high furnace temperature—approximating, I should judge, to about 1350°C., and no doubt the boiler was doing something more than its full load output. (The calculated output was about 46,00lbs./hour.) It is, of course, well known that in all boilers, heating surface nearest to the furnace does a disproportionately large fraction of the work. For instance, in the locomotive boiler the surface surrounding the fire box and exposed to the radiation of the fuel bed accounts for a very large part of the evaporation. The bottom row tubes in water-tube boilers are worked very hard, but under normal working they come to no harm because the water is in contact with the inside surface of the tube and the metal cannot be overheated. Assume that the furnace temperature is, say 1300°C., the temperature gradient across to the wall of the tube is a very sharp one—*i.e.*, down to, say, 200°C. the temperature on the water side—but further assume, as is reasonable under certain conditions of working, that steam bubbles attach themselves to the wall of the tube, then the temperature gradient is altered, and while remaining the same on the furnace side the temperatnre may easily rise to 700°C. or 800°C. on the steam side, under which condition dissociation of the steam will occur and the metal on the steam side will become oxidised, forming thin layers of oxide. With the bursting of the steam bubble, water, at approximately 200°C. temperature, comes in contact with the tube, which contracts and the oxide cracks away. One can imagine this process being repeated until the sound metal is reduced very much in thickness until, finally, it is unable to resist the pressure combined with the temperature, and then opens out and bursts. If careful measurements are made of the burst tube it will be found that it has stretched very little, but the thickness of the tube nearest the fire, where it has burst, comes down almost to a knife edge. On the other piece of tube adjoining the burst an incipient blister is forming, and it will be observed that the iron oxide on the steam side, which I have referred to, is clearly in evidence. It is also clear that some of it must have been cracked off and swept away by the rush of steam and water. I should add that such a bad burst occurs very rarely—I have only known two or three in the Power Stations, although there must be about 100,000 tubes in daily service. The trouble cannot be accounted for by the quality of the material, which is excellent in every respect. The moral to be drawn is that when boilers are to be worked very hard it is of the first importance that the feed water should be of excellent quality, and that the lower tubes should be cleaned at fairly frequent intervals to prevent anything except the slightest scale adhering to them. As a matter of general practice we put the turbine cleaner through the three bottom rows of the tubes every 1,000 or 1,500 hours, but even so such incidents are liable to occur even in the best regulated and best run systems.

ARMSTRONG WHITWORTH'S IN PEACE.

Despite the many difficulties of the engineering situation in Great Britain, there was certainly no trace of pessimism or depression about the address of the Chairman of Sir W. A. Armstrong, Whitworth and Co., Ltd (Mr. J. M. Falkner), to the statutory meeting of shareholders at Newcastle, held recently. The directors of the great enterprise, which bears two of the greatest names which have adorned the annals of engineering, are manifestly fully alive to the needs of the times. After giving the very comforting assurance that dividends would continue on the war basis for the present, at any rate, and setting out the new capital issues, Mr. Falkner went on to review the changes of organisation of the works from a war to a peace basis:—

"Let me first say a few words as to the future of armaments. That future is far too indefinite to encourage prophecy. But it is anticipated that it will be necessary to reserve a portion of our works and plant for the possible needs of this country. This has been borne in mind in our reconstruction schemes. We do not propose to disperse all the knowledge and experience of so many years, and we shall keep a sufficient scientific and technical staff to enable us, at short notice, to recommence and develop the manufacture of war material.

I will turn now to a notice of some of our main developments, and ask your forebearance if it is a long inventory and as monotonous as inventories generally are. After all, it is an inventory of your own possessions.

Our great shipyards at Walker are now fully employed. We have put both war-yard and mercantile-yard under one control, and we have a capacity for building 18 principal ships at one time. Here, too, armament uncertainties, arise, and the future requirements of our own and other navies are an unknown factor. But our war-yard has been modified at great expense, so as to be now admirably adapted for merchantile ships, and we have ample capacity for constructing the very largest passenger and freight vessels. All our slips are now occupied, and we are now building three of the finest liners, two for the Cunard Company and one for the P. and O. The *Aquitania*, a ship 900 feet long, is being sent to us for entire re-conditioning. It might have been thought that she was too long a vessel for the Tyne to handle, and her arrival will be an evidence of the potentialities both of the river and of our own yard.

We have turned such portions of our heavy gun and carriage shops at Elswick as are not to be reserved for national needs into marine engine works, on a very large scale. The change has progressed more rapidly than we could have expected. Although this department will be used primarily for satisfying the demands of our own yards, we have secured a number of orders for marine engines (some of them of exceptional power) from outside customers, and a large set of turbines has been completed. Although the capacity of this department is already great, it has been so arranged as to provide for further developments, of the necessity for which there are already indications.

The old shipyard site at Elswick is now partly covered by a large boiler shop where we shall make boilers for locomotives.

Coming to what is perhaps our most striking development, we have converted our ammunition works at Scotswood into locomotive works, and, by universal consent, there is no finer plant for the purpose in this country or anywhere else. At the beginning of the present year it was thought impossible that these shops, in the state in which they then were, could produce a locomotive within 12 months. But the progress we have made has been so satisfactory that already the first locomotive has been completed, and others are following rapidly. Many orders have been received at adequate prices, and we anticipate that we shall be able to keep the factory full and face any legitimate competition. As an illustration of what I said previously of our increased earning power, let me add that if this department were working to its utmost capacity, its turnover would be almost equal to the turnover of all the departments before the war.

Another portion of our works has been converted for the production of brass and aluminium castings of all types and qualities on a commercial scale, of brass sheets, and of bronze and aluminium powders. Our brass foundry is probably second to none in the country, and the present demand is keeping these shops fully employed

During the war our drop-stamping department at Elswick was greatly expanded, and we have taken steps to increase further this department, in order to meet the growing demand for this class of material.

Before the war and during the war we were makers of all classes of pneumatic tools. It has been thought expedient to expand further our capacity for their production, in view of the development of the use of these tools in modern practice.

We had been making carriages and equipments for the Government at the Close Works, Gateshead, and have now bought both site and shops from the Government. We are extending the place and turning it into an immense iron foundry for commercial purposes and for our own requirements. We attach much importance to this new departure because the demand in the trade is far larger than the supply.

In our great works at Manchester many changes have been and are being made. New steel works have been erected there on a very complete scale for the production of high-class steel by the most improved processes, and they will enable us to obtain the requirements of steel necessary for the departments of our organisation, and for the subsidiary companies to which I shall refer later.

One of the most important shops purchased from the Ministry of Munitions is being used for the manufacture of machine tools, and our machine tool shops, which are among the largest in the country, are already fully occupied.

Another fine shop purchased from the Ministry has been taken for the manufacture of special tools, such as cutters and drills for high speed steel. The Company has a reputation for such high speed steel, and a very large sale all over the world. By recent alteration at Manchester its manufacture has been concentrated and greatly extended.

The Engineering shops at Manchester have been re-arranged and much enlarged for the production of shafting for marine work and for the machining of other large forgings. The forges themselves have been increased during the war for the production of gun forgings, and have now been re-arranged to cope with the large and growing demand for forgings for shafting. In this re-arrangement we have been able to use a portion of the armour plate works which is outside the reserve capacity to which I have previously referred. By costly alterations and re-arrangements we have been able to use our armour plate mills for the production of a large tonnage of steel plates to contribute to the requirements of our shipyards and our locomotive departments You will be glad to hear that at Openshaw, which is now entirely occupied with peace products, we are actually employing more men than we were employing before the war."

The Chairman then referred to the business consolidations which had been arranged by Messrs. Armstrong, Whitworth, all of which evidence the will and capacity of that great concern to maintain and improve its position in the engineering world.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Profiteering Bills Holding Up Business Generally—Broader and More Sympathetic Outlook Need Regarding Germany's Position—Price of Gold Fairly Firm—American Exchange Gradually Improving—Iron and Steel Goods—American Trade—Electrical Goods—Oils and Colours—Timber and Building Materials.

The business outlook at the moment is anything but bright, because locally the merchants are waiting to see what the Government will do about the Profiteering Bills, both as regards trading and the rent question. This and other local questions, such as the bank exchange, rates between here and London, are other important factors on the trade horizon. The Chamber of Commerce has been busy throughout the week with meetings over the exchange and other cognate matters. All these things at one time had an unsavoury background in the Franco-German outlook, but, thanks to the latest advices, the atmosphere in that quarter is decidedly better and furthermore the value of the mark has appreciated because it is said that Germany is to be assisted to obtain raw material. There is no good purpose, in fact, it is a bad principle, to sit down and bemoan one's bad luck when the only remedy is to be up and doing one's best to right matters, in the shape of work, and all the better if that work lies in extra production. Just a few words about Germany. If a broad outlook is taken that country, with its seventy millions of population is doing fairly well after such a knock-down blow. To make a homely illustration, if two men quarrel it may take a week or even a month or so for these two men to become friends again, and when two neighbours get to logger heads it may take twelve months or so. And what about a big military nation, with the Emperor and the Junkers having been worshipped and placed on the highest of high pedestals, suddenly turning itself into a republic, creating so many jealousies as to who should be top-dog in the affairs of State? the military party always showing up, not only in the market place, but in out of the way places, as well as causing a lot of trouble to the seemingly honest new Government. Naturally we would like to see things go better and quicker, especially when we settle down to be arm-chair critics, and not too friendly at that. Therefore, it is well to take a "gallery" view of the arena, and, although in our haste, we are not very considerate, and it jars upon one's nerves at times to have to rub shoulders with our late enemies, yet the better way is to let them have a little fairplay, and so contribute to what the latest cables say of supplying or rather not putting too many obstacles in the way of letting them have raw materials to enable them to work themselves up into a position again. This will enable Germany to carry out the Peace conditions if she so wishes—of course that is the rub which only time can prove.

An Auction Property Sale on Tuesday went very flat—the Profiteering Act hanging over the place like a wet blanket. Also it happened that the local Stock Exchange was on the verge of being "panicky," but fortunately on Wednesday morning there was quite a revival on the Exchange, and in retracing one steps to inform the auctioneer of this it put him in a very much better humour.

Gold seemingly remains firm at 103s. 5d. per oz. in London, and the American Exchange is 16s. 9d. as between that country and London. It is expected that gold will hang around 5 guineas with small fluctuations, certainly until the Anglo-French debt has been paid to America in gold and dollar securities in October next. The other week the Bank of England had £115,000,000 of gold in their cellars, which is double that of the corresponding period of 1919. This shows that the Old Lady of Threadneedle Street is accumulating bullion, presumably under the auspices of the British Government.

IRON AND STEEL GOODS.

An iron and steel bar merchant, including both imported and local manufacture, had quite a record week up to the time of writing, chiefly because of the demand from the engineering shops and foundries now that the engineers and moulders' strike is over. Of late there has been a great demand for steel plates, and the local price has risen from 50s. to 100s. a ton, 1/8th and 1/16th, 62s. to 65s., 3/16ths, 5/16ths, 60s.; 3/8ths upwards, 47s. 6d. to 50s. Other prices are much the same. Some of the Capetown bowling people who came to Pretoria for the tournament inspected several of the ironware yards in Johannesburg. At one place they generally remarked that supplies were better here than at the Cape, and prices were more reasonable when the railway carriage was taken into consideration. A visit was made to a brass and iron foundry, where it was discovered that business was again in full blast. Some of the brasswork may well be termed exquisite, and the ordinary work of the mines also seemed of the best. It was explained by the manager that the demand for moulding of iron and other metals could be supplied locally even a little cheaper than that from oversea. The point, however, to-day was that most everything could be obtained on the spot without having to wait month after month in the present tantalising way of obtaining goods from both England and America. This foundry was also producing aluminium hats to protect the miners when sinking against the fall of rocks, and the hats were made on similar lines to those made for use in the trenches. It is not only very light, but impervious to a good solid knock of iron or rock. A foundry was also engaged in making plates for tube mills, turning out some splendid specimens. Of course, the whole secret of the position is that if wages keep up oversea we shall we able to produce this class of goods here and so keep the money in the country.

From all appearances it would seem that we are all right on this score for a year or two. The price of drill steel is 7½d. a lb., but practically no demand owing to the mines still buying so little. Also tool steel has a very poor demand, the price being from 1s. to 1s. 6d. lb., hollow 11d. to 11½d., shafting 7½d. to 8d. lb. Bolts and nuts have advanced, and taking the recent rise of 10 per cent. into account, the total rise has been about 30 per cent. during the last 5

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7 in.)

COULD PRODUCE

Rounds and Squares (to 6 in.), Channels, Joists, Tees Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

months. The latest quotation for 100 ton lots of the very best mild steel is £35 per ton at nearest station to factory; the carriage from works to Liverpool can be reckoned at 10s. a ton, the freight to, say, Delagoa Bay, 70s., and other small charges would bring the cost of it up to or over £40 per ton at our coast. In connection with the Exchange there seems to be abroad a little jealousy, as some people say that a certain large firm is getting too many large orders which formerly were divided among the general run of merchants. And also there is another little tit-bit: A certain somebody was given just over £1,000 to rush to Delagoa Bay to purchase a cheap line of steel goods said to be available there; but the party and the funds, it is stated, are still on their way to the coast—or elsewhere!

AMERICAN TRADE.

The representation of what might be termed an all-round house says that now the Exchange has levelled itself up to 16s. 9d. per £ business is altogether better, and that several firms have resuscitated their orders which had been held over when the exchange was only just over 13s.; also that more groceries, including breakfast cereals, as well as household chemicals, are coming forward more freely, as at the present time there are some six American boats at the Cape and another six are on the way, well loaded with general stores, and particularly motor cars and lorries.

As regards the steel business the representative of a leading firm of the United States importers states that his corporation has more than sufficient orders for about six months, which cannot be executed, more particularly as there are some big coal strikes on hand. He did not think much material would come out to Africa from either England or America during the present year. Some of his best clients sent big indents to America for certain lines at fixed quotations, and he now and then received a cable stating "Can only do so much for order No. 1; so much No. 2," and so on. He finds it very tantalising to do business under such circumstances, and is often in a quandary to know the best that can be done for his own corporation and for his clients. One paramount reason for the American mills being so glutted with work is that the railways there were handed back to their owners on 1st March, the agreement being that lines had to be handed back to the various companies in a similar condition to that when handed over, or to be subsequently put in that condition. In this connection one order alone placed by the Government comprises 750,000 tons of rails.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

ELECTRICAL GOODS.

Electrical materials are coming forward slowly, and the shortage in ceiling roses, adaptors, etc., has been slightly relieved, but there is no surplus of these particular lines, and until further shipments have arrived the position is none too sound. Tubing is getting more plentiful, but wiring is still scarce. Lamps are becoming dearer and scarcer; in fact, as previously stated, the general tendency is for all prices to harden Town and country business remains still satisfactory, and Kimberley and Pretoria have lately been sending big orders to Johannesburg. In Pretoria there are some large building contracts under way, which has resulted in the Rand dealers' receiving a welcome fillip in the shape of orders for electrical materials. In the opinion of a prominent dealer the projected Rent Profiteering Bill is not yet affecting the bigger building operations, of which many schemes are being carried out and in contemplation. But other dealers consider that future contracts are being hung up for the present, but obviously those now in the course of erection will be finished.

OILS AND COLOURS.

The feature is still turpentine, which is extraordinarily high and scarce; when a case or so can be picked up anywhere the price is £9 for two 4's and £9 10s. for ten 1's. Linseed oil is also very firm, raw being 125s. and boiled 130s. There is a substitute in the market at 43s. 6d. per drum of four imperial gallons. American salad oil, 155s.; South American, 135s.; African, 115s., all per case of two 4's. Pure French olive oil, 30s. a gallon. Castor oil, 125s. for two 4's.; second quality, 110s.; mineral ditto for mines, 45s.; lubricating oils, 45s. to 50s.; local grease, £35 to £37 10s. per ton; imported so scarce that a quotation cannot be obtained. Paraffin, 26s. 6d. to 27s. 6d. a case; motor spirit, 41s. a case, not too plentiful, but shipments are expected next month. Motor oil, 9s. to 10s. a gallon, according to grade. Plate Glass: A few small consignments have come from England, but practically are all sold to arrive at 8s. 6d. per ¼ inch per square foot. British makers are constantly sending apologies for not being able to execute orders some of which they have had for three years. Business has fallen off a little during the present week.

TIMBER AND BUILDING MATERIALS.

Business is quieter, as it has not picked up since the Easter holidays, and all of a sudden the architects have withdrawn their requisitions for tenders for the smaller class of houses, chiefly speculative, as undoubtedly before the Rent Profiteering Bill many speculative builders had plans drawn for hire houses and tenements, only awaiting their financial plans and bricks and cement to become more getatable. As regards bricks there is a little easier tendency for contracts within a few weeks' delivery as compared with months about New Year's time. Cement is still anything but plentiful, but that also is a little easier. The timber market has not yet experienced any relief, as deals are 2s. and 2s. 1d. per foot, and are very scarce at that. Floorings, 10d. to 10½d.; ceilings, 7d. to 7½d.; roofing iron, 1s. 6½d. to 1s. 8½d. The report is that business is fair but quieter than last month. The furniture makers are complaining that it is practically impossible to get lining timbers. Those makers who have been consulted say that this is not only true of Johannesborg but also applies to coast towns. The second-hand timber and building material dealers' yards are still very bare, and there are a few good orders on hand from the visitors to the recent Agricultural Show, but so far there appears little possibility of their being executed.

Tenders for 750 k.w. Converter.

The Johannesburg Municipal Council, at its meeting held on the 15th July, 1919, sanctioned an amount of £30,500 to be taken from renewals fund in connection with the renewal of certain traction feeders, in which was included a 750 k.w. converter for the Jeppestown sub-station. Tenders were invited for one 500 k.w. converter, and alternatively one 750 k.w. converter, and the attached list shows the tenders received. It is recommended that the larger size should be installed. (1) Bruce, Peebles & Co., make of converter offered—Peebles' La Cour, £5,100; (2) Griffin Engineering Co., Siemens' rotary, £5,074 or £5,134; (3) S.A. General Electric Co., B.T.H. rotary, £4,345; (3a) S.A. General Electric Co., G.E. synchronous, £4,295; (4) Sykes & Co., Crompton rotary, £5,540; Metropolitan-Vickers Electric Co., Ltd., Westinghouse rotary, £4,778; (6) British General Electric Co., Ltd., G.E.C. Witton rotary, £5,180. The Tramway and Lighting Committee recommend: (a) That the tender of the Metropolitan-Vickers Electric Co., Ltd., for one Westinghouse 750 k.w. rotary converter and switchgear at £4,778 be accepted; (b) that the same firm's tender for spares for above machine at £553 be accepted. (Total cost delivered on site, £5,331.)

COLLIERY NOTES AND NEWS.

Electrification of Natal Railways—A New Producer, the Grenfel Colliery—The Transvaal and the Export Trade—The Elandslaagte Company's New Seam.

At the first meeting of the new session of the Natal Institute of Engineers, held in the Technical College, Durban, the other night, Mr. J. T. Lea, the president, delivered an address to a good attendance. In the course of his remarks Mr. Lea referred to power projects in South Africa and remarked on the electrification of the railways in the following terms: Now the question of the electrification of the railways is under discussion, and before long we expect to have part of the Natal line under electrical control. This section of the line is a most difficult one, and it has been proved that the electric locomotive has a great advantage over the steam locomotives for this class of line. This again brings into consideration the question of power production, and there appears here an ideal scheme of centralised electric generating stations of the most modern type, one of which could be installed on the coalfields, where the coal could be used to produce the electrical energy for driving the electrical locomotives and for supplying power to industrial centres.

* * * *

Amongst new coal-producing concerns in the Transvaal is the Grenfel Colliery Co., Ltd., which has been developing its property of 5,692 acres on the main line between Ermelo and Breyten for the last two years or more. The mine is opened up by an adit to a length of 1,300 feet, which will give a reserve of coal for at least two years, development keeping pace with the output, estimated to reach 10,000 tons per month within a reasonable period. The coal is reported to be of excellent quality, and will meet with a ready sale; several inquiries for large quantities have already been made. The nominal capital of the company, registered under the Limited Liability Laws of Natal, in 1918, is £46,154, apportioned in shares of £1 denomination as follows: Working capital, £16,700; vendors (the Ermelo Coal and Iron Co., Ltd.), £20,000; reserve shares, £9,454. The property has been favourably reported on by Mr. D. Harris, M.I.M.E., consulting engineer and manager, Tendega Collieries, Natal, who states in the course of his report: "I consider the results very satisfactory. Two workable seams are proved to exist over the greater part of the farm. The top seam is equal to the best in the district, but the bottom is better than anything found in the Transvaal, and is undoubtedly equal to the Witbank coal. The seams are of good workable thickness. The roof and floor are strong and favourable, and the thickness of the strata between them is satisfactory, and will easily permit of both being mined simultaneously, if required. I am also of opinion that there will be entire immunity from trouble from gas, and little (if any) from water." The plant as it stands to-day is most valuable, and is capable of treating immediately 10,000 tons of coal per month; with certain comparatively small additions the capacity could easily be augmented to 20,000 tons monthly.

* * * *

Although a strong demand for South African coal is springing up on the Baltic exchange, and although cables report that Union coal is selling in Rotterdam at a lower price than the Welsh or German product, the bulk of Transvaal coal owners do not seem to attach much importance to this highly promising development. Interviewed during the week on the question of export trade potentialities by the daily Press, a well-known Johannesburg authority expressed the opinion that, as far as the Transvaal was concerned, there was no prospect of any development in this direction. If it were true that South African coal had been sold abroad more cheaply than the English or German article, obviously it must have been from some Natal colliery having the advantage of special shipping facilities, as in the ordinary way cargo rates were too high to permit of exportation, even when the railage from mine to port was only a minor consideration. Unfortunately in the case of South Africa it was a major consideration. "Moreover, the collieries of the Transvaal," he said, "are more or less a monopoly, the greater part of their output being bespoken by the mining organisations. When the mines have been supplied, besides local factories and wholesale dealers, there is not enough left over to make export worth while." He also thought that this reported cheap sale of South African coal was very probably but a flash in the pan. He considered it idle to speculate optimistically on the question of future consignments.

We cannot understand the pessimism which prevails in regard to the export possibilities of the Transvaal coal industry. Coal of good quality exists in tremendous quantities in this country; there is a world-wide demand for coal and "monopoly" or no monopoly the day must come when the Transvaal will export coal in very large quantities.

* * * *

We understand that the Elandslaagte Colliery Company is developing the new seam of coal recently encountered on that property and that the results of disclosures both in regard to quality and thickness are eminently satisfactory.

A British All-Electric Home.

At the "Ideal Home" Exhibition recently held in London, England, one of the exhibits consisted of a modern house equipped throughout with electricity, not only for lighting but for cooking, heating (including the heating of water for kitchen, bathroom, and all other purposes), and the electric driving of vacuum cleaners, machines for washing dishes and for washing clothes, serving machines, and plate and boot polishing machines.

A Departure in Overhead Cranes.

In general design overhead electric cranes for engineering works have tended to become standardised, but a large British firm has introduced a notable departure which carries many advantages. Instead of the usual double-girder arrangement, giving a square appearance, there is a triangular girder, the apex of the triangle being downwards. This design gives a very rigid yet light girder, and enables the load to be lifted one or two feet higher than would be possible with the usual type of girder. The driver also has a clearer view of the load from his "cab" than is otherwise possible. The firm has installed this new type in its own works, and finds it most suitable for comparatively light loads on long spans—the very conditions which are least suited to the ordinary girders.

Kamfersdam Mines.

It will be remembered that at the outbreak of War the directors of this diamond mine were compelled to suspend operations and to shut down the mine and the works. In the interval all that has been done was to keep the plant and machinery in working order with the minimum of expense. On June 30, 1914, the total loss on working appearing in the balance sheet was £164,963. The balance sheet for the year ended June 30, 1919, shows an unfavourable balance of profit and loss account to a total of £203,630. This additional loss has been accumulated in fairly regular instalments over the period. The year under review witnessed a net loss of £10,916, and would have been slightly greater but for a profit of £373 on the sale of diamonds. Early in 1919 it was hoped to resume operations, but the managing director was unable to secure a passage to the Cape before the end of December. However, arrangements have been made to have the plant and machinery in full working order to enable a start to be made on his arrival. Turning to the balance sheet as on June 30, 1919, the assets, mainly consisting of plant, machinery, stores, and the property, remain practically at the same value as in 1914. Sundry creditors stand at £19,520, in addition to which there is a bank overdraft of £22,109. The debenture capital has been increased by £1,000 to £11,000, the addition, representing the bonus of 10 per cent. which was due on the maturity of these debentures in 1917, having been made with the consent of the holders. Arrears of interest on these debentures are outstanding to the amount of £11,556.

New State Areas, Limited.

(Incorporated in the Transvaal.)

REPORT OF THE DIRECTORS

To be submitted at the Third Ordinary General Meeting of Shareholders called for Friday, the 4th day of June, 1920, at 3.45 o'clock in the afternoon, in the Board Room, Consolidated Building, corner of Fox and Harrison Streets, Johannesburg.

To the Shareholders,

Gentlemen.—Your Directors beg to submit their Report and audited Balance Sheet for the year ended 31st December, 1919, together with Reports from the Consulting Engineer and Mine Manager.

CAPITAL.

The Capital of your Company is £1,500,000, in shares of £1 each. Of these 870,000 shares are fully paid, and on the balance of 630,000 shares 2s. per share has been paid.

PROPERTY.

Your property consists of 1,175·6736 Claims on the farm De Springs No. 15, and 874·3224 adjoining Claims on the farm Geduld No. 24, making a total of 2,049·996 Claims, in the Mining District of Boksburg, held under 2,055 claim licences, in terms of a Mineral Lease from the Government under the Precious and Base Metals Act of 1908.

ACCOUNTS.

The Balance Sheet reflects the following capital expenditure during the year :—

Machinery and Plant	£68,560	17	3
Buildings	19.866	6	3
Railway Siding	25,501	9	2
Permanent Works	120,159	4	2
Dams and Reservoirs	1.384	8	5
Roadmaking and Surface Sundries	3,579	19	0
Tree Planting	466	4	10
Furniture and Instruments	303	17	0
	£239.822	6	1

Contingent liabilities amounting to £32.227 19s. 8d. represent commitments in respect of authorised votes for machinery and plant, retention moneys due to contractors and uncalled liability to the Native Recruiting Corporation, Ltd., Witwatersrand Native Labour Association, Ltd., and Rand Mutual Assurance Company, Ltd.

The increase under the head of "Investments and Interests in other Concerns" of £595 5s. 6d. is due to the readjustment of your holdings in connection with the increased complement of native labour.

Administration and General Expenses for the year were £10,317 3s. 1d., from which is deducted the amount of £991 1s. 10d., being brokerage on purchases of stores and machinery.

Rents and Interest received totalled £7,201 13s. 0d., and the Income Tax payable on these sources of revenue was £1,068 2s. 0d.

OPERATIONS.

During the period under review shaft sinkings were :—

North Shaft ... 920 feet. Total depth 1,065 feet.
South Shaft ... 1,338 feet. Total depth 1,441 feet.

The railway line from Springs to the South Shaft was in working order early in December, and since the close of the financial year the remainder of the line has been completed.

DIRECTORS.

Mr. P. Ross Frames, C.M.G., resigned during the year. You will be asked to confirm the appointment of Mr. J. G. Lawn as a Director in place of Mr. G. Imroth, resigned, and to elect Directors in place of Messrs. J. G. Lawn and J. H. Crosby, who retire in terms of the Articles of Association, but are eligible and offer themselves for re-election.

AUDITORS.

Messrs. E. Danckwerts & Co. and Messrs. Alex. Aiken and Carter, the retiring Auditors, offer themselves for re-appointment. You will be asked to appoint Auditors for the current year and to fix the remuneration for the past audit.

MANAGEMENT.

Mr. M. J. Turner, who was temporarily in charge of the property, relinquished the management in April and was succeeded by Mr. J. Richardson as Manager.

CHARLES MARX,
J. G. LAWN,
JAS. H. CROSBY,
P. RICHARDSON,
Directors.

Johannesburg,
17th March, 1920.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] APRIL 24, 1920. [No. 1491.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News ... 171
Topics of the Week:
The Business Outlook ... 173
The Position at the Randfontein Central ... 175
An Important Diamondiferous Discovery in Brazil ... 177
Remarkable Sinking at the New State Areas ... 179
Mining Questions in the Union Assembly ... 180
The Year with the Robinson Deep ... 181
The Position of the Crown Mines, Ltd. ... 183
Improved Outlook of the Durban Roodepoort Deep ... 184
The Village Deep: A Year's Results ... 185
The Postmasburg Diamond Fields ... 187
The Week in the Sharemarket ... 189
The Outlook for Transvaal Silver and Base Metals ... 190
Correspondence and Discussion:
West Rand Reefs: A Prospector's Growl ... 193
Collieries Notes and News ... 196
Engineering Section:
Wire Ropes and Safety ... 195
Trade and Industries Section:
The Week in the Mining Material and Engineering Trades ... 197

Notes and News

Heidelberg Reefs.

In connection with the note appearing in our last issue on the subject of the Government's statement that the conglomerate reefs on certain properties in the Heidelberg area were, in the opinion of the Government's technical advisers, not referable to the Van Ryn series, we wish it to be distinctly understood that this statement refers to certain properties and certain reefs only. Our note was never intended to convey the impression that in the opinion of the Government's geologists all reefs in the Heidelberg district are on the Kimberley horizon, nor was it intended to give the idea that the Van Ryn series does not exist in the Heidelberg district. We have deemed it advisable to make this clear, as some people appear to have misunderstood the note.

* * * *

Modder West Developments.

In another part of this issue will be found the report of the general manager of this property for the month of March. It will be observed from this that the development work carried out during the month amounted to 178 feet. The five stamp battery ran for 4·8 days and crushed 148 tons for a plate recovery of ·3¼ dwts. per ton. Mr. Rose-Martin points out that the plates are still absorbing gold and that the above recovery does not represent the actual recovery. Moreover, the ore crushed was unsorted development rock taken over great widths and from 14 widely separated faces of varying width. The mill results, however, confirmed the assay values of the month's development, which average 8 dwts over 65 inches. Ten thousand tons of ore have been blocked out and development is proceeding in a most encouraging manner.

* * * *

South African Iron and Steel Amalgamation.

H.M. Senior Trade Commissioner at Johannesburg reports that, after rather prolonged negotiations, the Pretoria Iron Mines, Ltd., have amalgamated with the Union Steel Corporation, Ltd. The new concern will be known as the Iron and Steel Corporation of South Africa, Ltd. It is understood that the capital of the new company (£1,500,000) is being supplied by the Central Mining Investment Corporation co-operating with the National Industrial Corporation of South Africa. At a recent extraordinary meeting of the Pretoria Iron Mines, Ltd., the constitution of the new company was outlined. It was stated that blast furnaces would be erected, fully equipped, and coke ovens, with by-products recovery plant, so that tar, sulphate of ammonia and benzol would be produced. Steel furnaces would be installed, and probably electric furnaces, for the production of steel castings, alloys and high-grade steels, as also mills for the rolling of various steel products. In short, it is the intention to erect a plant which will provide everything that can be used in the way of iron and steel.

* * * *

Rooiberg Minerals.

The report of the Rooiberg directors for the quarter ended 31st March, 1920, states that the estimated revenue from 133 tons of concentrates was £32,058; estimated expenditure, including realisation charges and exploration, £17,488; add adjustments in respect of previous shipments, £27—£17,515. The average price per ton of metallic tin on which the quarter's revenue has been determined is £337 17s. The total ore accumulated at 31st March, 1920, was estimated to be 11,511 short tons. The mill which was re-started on the 9th January last is running satisfactorily. No ore from "Blaauwbank has been milled during the quarter. An agreement has been entered into with the Transvaal Consolidated Land and Exploration Co., Ltd., regarding the farm "Weynek" No. 763, which adjoins this company's property, under which this company will prospect the farm, with an option to purchase the mineral rights. Operations are being started on the property immediately.

Scepticism and the New Idea.

A writer in the *Mining Magazine*, commenting on Mr. H. L. Sulman's paper on flotation, an abstract of which appeared in a recent issue of this journal, recalls the days when the process was in its infancy. "Now that every one has accepted flotation as an accomplished fact, it is almost impossible to believe that in the early days the proposed methods were received with incredulity. In America, particularly, the processes were practically ignored. Many eminent authorities there looked askance at the English inventors, and regarded them as charlatans on the level of gold-brick merchants and bunco-steerers. The present writer sent an article on oil flotation to the *Engineering and Mining Journal* in 1899, but the late Richard P. Rothwell returned it with the comment: 'Heavy minerals don't float; do not write articles for the *E. & M.J.* after a champagne lunch.'"

* * * *

Experimental Work on Oil Shales.

Because of the enormous quantity of oil tied up in the great shale deposits of the United States, it has been the opinion of many engineers that the recovery of the oil can be profitably undertaken. A bill has been introduced in the Senate proposing to provide the Bureau of Mines with $140,000 for experimental work on oil shales. A large initial outlay of capital will be necessary in any projects organised to get commercial oil in this way, because an extensive manufacturing process is involved. The importance of accurate and extensive preliminary research work is therefore apparent. This source of petroleum supply will be of added value to the country when the point is reached where oil wells do not produce sufficiently to meet all requirements. One item of great importance which must be looked to in the future is the increasing tendency to use oil in high-power naval craft. It is contemplated that a supplemental appropriation of about $70,000 per annum will be required to carry on the necessary research work.

* * * *

Geological Society of S.A.

The next monthly meeting of members of the Geological Society of South Africa will be held in the Council Chamber, Chamber of Mines, Johannesburg, on Monday evening, 26th April, 1920, at 8.15 p.m. The following papers will be open for discussion: "Some Notes on the Geology of the North-Western Portion of the Natal Coalfield," by F. A. Steart. "Pleistocene Movements in Sierra Leone," by F. Dixey, M.Sc., etc., Government Geologist, Sierra Leone. "The Karroo Dolerites of South Africa," by A. L. du Toit, D.Sc. The following papers will be read: "The High Level Diamond Bearing Breccias of Diamantina, Brazil," by Mr. David Draper (honorary member). "Note on the Volcanic Origin of the Salt Pan on the Farm Zoutpan No. 467," by Dr. P. A. Wagner, D.Eng., B.Sc. "A New Occurrence of Vanadinite in the Marico District, Transvaal," by Dr. P. A. Wagner, D.Eng., B.Sc.

* * * *

New Town in Katanga.

The Government of Katanga, in agreement with the Comité Special du Katanga, the Union Miniére and Katanga Railway authorities, have decided to create a new town in Katanga. This new town will be named Funguruma, after a copper mine in the vicinity which is about to be exploited. Funguruma is situated on the Katanga railway, between Kambave and Shilonge, and it is probable that it will be a very important station. In spite of the fact that the site of the town has only just been fixed, more than 70 requests for ground for building upon have been received in the offices of the Comité Spécial du Katanga at Elisabethville. The allotment of ground for building purposes comprises all sites necessary both to the merchants and to the agents of the Colony, of the Union Miniére and the Railway. It will be seen that the old method, when the exploiters built on the mine itself, and some distance from the town, a suburb where they installed their staff, has been abandoned. At Funguruma all the inhabitants, with the exception of those members of the staff whose permanent presence on the works is strictly necessary, will be grouped in the same centre.

* * * *

City Deep Taking Over the City and Suburban.

A provisional agreement has been entered into between the board of directors of the City and Suburban Gold Mining and Estate Co., Ltd., and the representatives of the City Deep, Ltd., for the purchase by the latter of the mine and plant of the City and Suburban Company for 45,000 City Deep £1 shares, the City and Suburban Company retaining its township, stores, cash, gold in plant on final clean up, etc. The City and Suburban Gold Mining and Estate Company was registered in Maritzburg in 1887 as the City and Suburban Gold Mining Co., Ltd., to acquire 24 claims, being the mynpacht of the farm Doornfontein, and 79 claims on the farm Turffontein. The vendors received £30,000 in fully paid £1 shares. In 1891 the company purchased for £14,000 the freehold of the entire estate (formerly held on lease) with a total area of 454 acres. The northern portion of the estate, adjoining Johannesburg, was laid out as a township, and 666 stands were sold in 1894 on a 99 years' lease, realising £63,292. The company was reconstructed, and the present title adopted in June, 1895. The authorised capital is £1,360,000 in 340,000 shares of £4 each. Up to April, 1891, 20 stamps were crushing; a further 10 were then added, and 10 more in July and 10 in August, 1891, making 50. In 1894 a new 80-stamp mill was started and 80 stamps were added in 1895. The 50 old stamps have since been shut down, leaving 160 working. The original reef-bearing area is reckoned as about 155 claims. Early in 1913 the company came to an arrangement with the City Deep, Ltd., whereby it secured 15 claims to enable it to work the corner of its property to the extreme south. The price was £101,250—£25,000 down and annual instalments for four years as to the balance.

* * * *

The Gold Question: Mr. E. Oppenheimer's Views.

In the summarised report of the Gold Conference, held at Pretoria in October last, the following views of Mr. E. Oppenheimer are given. *Inter alia*, he said: The gold mines were at present selling their gold to England and there must be some reason for this. One was that London was the recognised gold market. Then, though our geographical position was excellent the shipping facilities were not available to get the gold to other markets. Further, we had no refinery or mint. The selling agreement should not, perhaps, have been so hard and fast, it should be possible to terminate it at shorter notice, but there were these reasons why the producers entered into this agreement, and these reasons had not changed as yet. Then the banks here were not capable of undertaking the business of exchange merchants; they were like Provincial Joint Stock Banks in England and their exchange system merely amounted to charging a commission and interest for the period of the bills of exchange. The exchange business was quite a different business to that to which the banks were used. A Central Gold Bank would probably be required as the centre of the banking system. We should have to introduce a banking system like that of England or America. To have a proper exchange business in the Union necessitated a refinery and mint and an up-to-date exchange system. Without these it was impossible to establish natural exchange and a free market for gold. The refinery and mint should be pushed on with as fast as possible. We should also see what reforms in the banking system were necessary. There should be an amendment of the gold selling agreement to provide that instead of six months' notice it could run from month to month, and some South African should be in London to learn all about the gold trade. The Government should push on with the mint and bring about a proper banking system. A free market in gold must be established as soon as practicable, but a free market for the western world only—as had been suggested—was not practicable. It would be free for all.

TOPICS OF THE WEEK.

THE BUSINESS OUTLOOK.

In our news columns each week we attempt to indicate the chief features in the mining material market as well as on the Stock Exchange; and it may be well to supplement these weekly reviews by occasional appreciations of the business situation as a whole. Such broader views are now greatly assisted by the excellent monthly reports issued by the Standard and National Banks, which we are glad to note confirm substantially the readings of the signs set forth in our columns every week. As regards the present position in the sharemarket we cannot improve on the statement made by a leading stockbroker quoted in our sharemarket notes this week. Regarding general business, the outlook is admirably summed up in the circular reports issued by our two leading banks. In the Standard Bank report it is pointed out that the enormous purchasing power resulting from the inflation of credit during the War is being exercised upon heavily depleted stocks and consumption is unlikely to be upon a less extravagant scale until the steady increase in the volume of outstanding money is stayed. Although certain interests may benefit, the welfare of the community as a whole is not best served by existing conditions. It is being sought to apply corrective measures, but the process of deflation must of necessity be very gradual. The present tendency of the exchanges between certain countries is not without significance. Nevertheless, pending the restoration of productivity in Europe and restarting the circle of exchange, the existing level of prices and wages is unlikely to show any abrupt change; indeed the present abnormal demand together with slack production and disorganised transport, if continued, will probably further exaggerate the economic evil results of war reflected in the high prices ruling. . . . South African prices are determined largely by world conditions which, however, should not influence to an important extent the price of foodstuffs produced within the country. The fact that legislation is being introduced to prevent speculation, to which recent advances are attributed, has already influenced the markets in a number of commodities. The National Bank report is equally explicit and authoritative. It says: More than the usual number of disturbing factors have combined to interfere with the general course of business. The general election had an unsettling effect. Labour troubles continue to hamper production and distribution. The prolonged strike of engineers and iron founders on the Rand has affected a much wider circle of industries than those directly concerned, whilst some idea of the losses resulting from the strikes of the railway and postal services in Rhodesia may be gathered from the fact that, for nearly a fortnight, a tract of country north of Bulawayo to the Congo and to the east as far as Beira was cut off, except for telegraphic communication. Rumours of impending strikes are responsible for delaying projected enterprises and checking the expansion of existing concerns. Oversea markets report that prices have a rising tendency due to increased manufacturing costs. Although cables from England indicate a tendency towards higher prices, mine buyers look for a reduction resulting from cheaper freight. According to a recent message prices of mining material hardware have advanced in Britain from £5 to £8 per ton during the past few weeks. Orders are difficult to place in America and England as all firms in those countries have much work in hand. It is hoped the recent improvement in the American exchange will continue, as it particularly affects the landed cost of this class of goods and there are at present many unexecuted indents. Imported electrical materials are arriving gradually but tubing and wiring are expected to be very scarce in the near future. As a footnote to the foregoing we may add the following facts for which we are indebted to Mr. J. W. Kirkland, the managing director of the S.A. General Electric Co., Ltd. Mr. Kirkland has just received from the company's factory in England information as to the increased costs of raw material and labour as compared with July, 1914. Many people question whether increased costs of electrical and other apparatus have been justified, but whoever looks through the detailed list will be quite convinced on the subject. The following figures, supplied to us by Mr. Kirkland, show the percentage increases of costs of component parts of electrical apparatus: Electrolytic copper, 95 per cent.; extras on cotton covering, 600 per cent.; extras on enamelling wire, 250 per cent.; iron castings, 250 to 300 per cent.; malleable castings, 200 to 225 per cent.; steel castings, 200 to 225 per cent.; shafts, 175 to 200 per cent.; steel sheets (including increase as of April 1), 260 per cent.; turbine wheels, 500 per cent.; billet steel, 450 per cent.; clamp rings, 400 per cent.; babbit metal, 160 per cent.; sheet mica (amber), 275 per cent.; sheet mica (Indian), 140 per cent.; shellac, 1,200 per cent.; turps, 650 per cent.; linseed oil, 375 per cent.; fibre, 160 per cent.; tape, 250 per cent.; labour (skilled), 115 per cent.; labour (unskilled), 175 per cent. The foregoing certainly explain the rise in the price of electrical and other apparatus, and throw a lurid light on the generally increased cost of labour in all branches of industry. The moral of all these facts and figures is that the outlook is still far from clear and that the whole business situation is such as to demand the utmost caution.

South African Alkali: New Share Issue.

The following is an extract from the Department of Mines and Industries annual report by the Government Mining Engineer for the year ended 31st December, 1917: "South African Alkali Co., Ltd. (Pretoria salt pan): Up to the end of 1916 only the beds of trona or massive crude carbonate of soda in this pan were worked. These beds are erratic in character and limited in extent, and it was obvious that the real wealth of the pan lay in the mud with which the crater-like 'pipe' is filled to an unknown depth. It is possible and even probable that the first 50 feet of this mud in the pan contains £2,000,000 worth of soda salts, in which case the pan is as valuable an asset to the State and to the shareholders as a rich diamond mine. The inherent richness of the pan is, however, so great that the numberless difficulties which are certain to occur in opening a new industry are equally certain of being overcome." The S.A. Alkali Company, nothing daunted by past disappointments, are making another bid for success by putting the property on a sound financial basis. Experiment and investigation having satisfied the technical advisers that the company has almost unlimited quantities of high-grade solution in the pan and that the process of extracting the soda and salt therefrom is economical and effective, the directors have decided to raise the necessary capital by an issue of shares to instal such machinery and plant as is required to give an adequate daily output. With this object in view, 35,000 new shares are now offered to shareholders for subscription at the price of 22s. 6d. per share, with the right to subscribers to take up within twelve months a further 17,500 shares at 25s. per share. This issue is guaranteed by the directors, who have a similar option for the same period in consideration of their guarantee. The amount realised by this issue will cover the cost of the new machinery, which it is proposed to instal, besides liquidating all outstanding liabilities of the company. The directors are of opinion that as the demand for soda is greater than ever, and the experimental stage as regards treatment is completed, there will be no difficulty, with ample funds at their disposal, in bringing the company to a producing and dividend-earning stage. The new plant is estimated to give an output of from 12 to 16 tons per day, from which the profit, calculating on a conservative basis, should be at least £3,000 per month. The directors are all well-known and respected Rand professional and business men, and the new issue is a most attractive one. The latest report from the engineer on the property states: "Abundant supply high-grade liquor northern side of pan, yielding 1·6 lbs. pure dry carbonate of soda and 2·836 lbs. pure salt per gallon." Application forms will be found in another part of this paper.

SIEMENS BROTHERS
& CO., LIMITED.

CABLES and WIRES	TELEGRAPHS	LINE MATERIALS
CABLE ACCESSORIES	TELEPHONES	FLUID CELLS
EBONITE	SIGNALLING APPARATUS	DRY CELLS

SIEMENS BROTHERS & Co., Ltd.,
WOOLWICH, LONDON, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 Lines). Telegrams: "SIEMENS, WOOLWICH."

HOME BRANCHES:
BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:
CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE OUTLOOK AT RANDFONTEIN CENTRAL.

How the Scheme of Re-organisation is Progressing—The White Elephant and Mystery Proposition of the Rand—Last Year's Results and Recent Returns—The corner about to be Turned—More Effective Working Assured.

In view of the progress attained in connection with the reorganisation of the whole scheme of development and mining at the Randfontein Central, the position and prospects of this company invite a certain amount of detailed consideration at the present day.

The Largest Disappointment of the Rand.

The various subsidiaries which to-day constitute the Randfontein Central property have without exception been the largest disappointment of the Witwatersrand. Other propositions have made good and then relapsed into either temporary poverty or complete obscurity, but Randfontein Central has never yet made good in the truest sense of that term. Whether it will achieve that consummation so much to be desired or not remains to be seen; it is not claimed that this article is going to solve the many problematical and little understood factors which in combination have all conspired to make Randfontein not only the white elephant of the Rand but also in some degree the mystery proposition of these gold fields. Under the old Robinson regime publicity in regard to Randfontein was never sought or courted. We recollect that during Mr. Pope Yeatman's period of office as consulting engineer to the Randfontein group we were escorted over the surface works of the four subsidiaries then equipped. But a request to examine assay plans and to inspect the underground workings was met by a courteous but nevertheless firm refusal.

The Lone Hand Policy.

For years Randfontein held aloof from the Chamber of Mines and pursued a way of its own. It was the lone hand of the mining industry, little understood and therefore little admired. The Randfontein mines were forever going to do something great, but so far they have never made much history in the mining world. In former years there was always some unforeseen eventuality which clouded the sky of achievement at the last moment and which dimmed the lustre of the Robinson constellation of properties—shortage of unskilled labour or delay in the delivery of new plant or stores, for example. Of these matters the public knew little until the annual meeting was held, and disappointments were explained simultaneously with the buoying up of fresh hopes. But the frequent changes in management made the public sense it that the administration was neither happy nor harmonious. The *cause célèbre* in which the Randfontein properties are so largely involved continues to be fought out at Pretoria, and as the various points under contention are *sub judice* comment on them is reserved. It may, however, be remarked that the evidence alleged to date has thrown an interesting light on past methods of administration out on the West Rand and has also afforded some interesting expressions of opinion as to the ethics of buying a pig or a mine in a poke.

The Barnato Purchase.

The facts as we know them to-day, however, are that the house of Barnato acquired Randfontein, and in accordance with the sound and progressive policy pursued by this group at other mines immediately set about putting their new house in order. The publication of the annual report for the year 1919 enables one in some degree to gauge the measure of the new administration's remedies. The year reviewed in the technical and financial reports published in our last issue has been an exceptionally eventful period for all mines, and particularly for Randfontein. During 1919 the selling of gold in a free market established a so-called premium for the Rand's product, and Randfontein with its huge mill and large output benefited by the "premium" as much, if not more so, than any other mine on the Witwatersrand. It follows that the company also stands to lose correspondingly by a decline in the price of the metal.

Recent Returns.

The incidence of the premium on this company's returns is well illustrated in the results secured during recent months, which are exhibited in the accompanying table:

1919.		Tons.	Revenue.		Cost.	Profit.	
Sept.	...	150,000	£174,378	23/ 3	21/11	£10,268	1/ 4
Oct. ..	...	150,000	177,641	23/ 5	22/ 6	9,115	1/ 3
Nov.	...	135,700	155,148	22/10	23/ 8	*5,683	0/10
Dec.	...	133,500	153,326	22/ 9	24/11	*13,122	2/ 0
1920.				Dwt.			
Jan. ..	...	145,000	217,193	5·57	24/ 7	39,042	5/ 5
Feb.	...	127,500	193,561	30/ 4	31/ 3	*5,952	0/11
Mar.	...	150,000	213,737	—	27/11	4,960	—

* Loss.

It will be observed that the January profit of over £39,000 was the best recorded in the recent history of the company. But taking the profits and losses secured during recent months together it is very clear that the net earnings do not suffice to pay much of a dividend on the large capital of four and a half millions plus a debenture issue of over two and a half millions. The Randfontein Central has never yet shone as a dividend distributor. For 1912 the company distributed 5 per cent., for 1913 10 per cent., and for 1915 2½ per cent. There have been no distributions since. It is no secret that since the acquisition of the property by the Barnato group Randfontein has caused its

C. D. LUCAS & B. E. WOLFE
Mining Engineers.

Permanent Buildings,
Phone 4368.
P.O. Boxes 6301 and 537.
Johannesburg.

EXAMINATION RESULTS.

MANAGERS' EXAMINATION held January, 1920.—We obtained no less than NINE passes from ELEVEN Entries. This constitutes a percentage record for this Examination.

SURVEY EXAMINATION held November, 1919.—SIX of a total of SEVEN Passes were obtained by our Students. All other coached men failed to pass.

OVERSEERS' EXAMINATION.—We are AHEAD of all coaches with passes 1918 and 1919.

Write for particulars of our up-to-date Tuition.

MAGNOLIA ANTIFRICTION METAL

TRADE MARK

"FLOWER" BRAND.

HAS THE LOWEST CO-EFFICIENT OF FRICTION.

KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.

Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd., Johannesburg., Bulawayo and Salisbury.

new owners not a little anxiety. The position to-day is, however, improving slowly but surely. The future of Randfontein unquestionably depends in the main on the economical working of the reefs in the mines. Since the Johannesburg Consolidated Investment Company took the proposition in hand a scheme of reorganisation of underground work has been given effect to and the report of the consulting engineer on last year's operations makes it clear that work is progressing favourably in this respect.

The New Mining Scheme.

Mr. White, in his annual review, points out that the results for the year were not up to expectation owing principally to the increased cost of labour and material and to the shortage of native labour, which was acutely felt during the year and especially in the last quarter. Results were also adversely affected by the heavy cost of shaft maintenance. It is, however, hoped to be able to abandon the old Robinson vertical and sub-incline shafts towards the end of this year, when the new north vertical shaft comes into commission. It is intended to stop the north vertical shaft at a depth of approximately 4,000 feet, but the sinking of the south vertical will be continued to the full depth of 5,000 feet. The Leader and West Reefs were intersected in the north vertical shaft at the latter end of the year, and gave the following values: Leader, depth 3,210 feet, 9·8 dwts. over 48 inches; West Reef, depth 3,560 feet, 9·8 dwts. over 48 inches. In the last annual report the intention to instal a main pumping station in the north vertical shaft was alluded to, and this station has now been cut and the pumps have been delivered and work is proceeding rapidly with their erection and with the settling pits and sumps. Mr. White hoped to have this pumping plant in commission during the current month, and when the requisite connections are made to this plant a large number of small capacity pumps on the sections between Porges and Mynpacht will be thrown out of commission, thereby reducing pumping costs considerably. Two of the permanent electric winders, one for the north and the other for the south vertical shaft, have been ordered. These are of the Ward-Leonard type, and will be capable of hoisting a 5-ton skip from 5,000 feet at a speed of 4,000 feet per minute. It is expected that these hoists will be put to work during the first half of 1921. The reef exposed in development has continued to show good and consistent values, the Leader giving 90·78 per cent. and the West Reef 84·41 per cent. payability. It is obvious from all this that Randfontein has all the possibilities of a really great and profitable proposition. In usually well-informed circles it is believed that the company has turned the corner from a long and weary way of disappointments into the road of slow but steady progress. Obviously the incidence of the gold premium will have a most material influence on the company's future destinies, but it is at any rate assured that in the near future the Randfontein mines will be worked very much more efficiently than they have ever been operated in the past.

Incomati Estates, Ltd., has been floated in London with a capital of a quarter of a million sterling, and now invites subscriptions for an issue of 150,000 ordinary shares of £1 each at 25s. per share. The company was incorporated in February, 1914, and carried on business as sugar-cane planters and manufacturers on the Incomati River, near Delagoa Bay. The estates owned by the company consist of about 50,000 acres, situated along both banks of the river, and has a frontage of about 35 miles. Of the area owned by the company it is estimated that 35,000 acres is sugar land, the balance being suitable for other crops. The estate manager estimates that the cane crop for the current year will be some 30,000 tons.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

IMPORTANT DIAMONDIFEROUS DISCOVERY IN BRAZIL.

Mr. David Draper reported to have Discovered a Large and Valuable Pipe—Some Interesting Facts and Figures about Brazilian Diamonds.

Not only in South Africa but in other parts of the world where the existence of diamonds has been proved are the present high prices for stones stimulating prospecting and development activities. In our last issue we published a note on the mines and minerals of the Belgian Congo, which showed that in 1918 the Kasai diamond mines produced 164,182 carats, as compared with 90,000 carats in 1917.

The Diamantia Discovery.

Brazil, too, is said to be increasing its production, and in connection with that country it is interesting to learn that Mr. David Draper has just recently made a most important discovery. Mr. Draper is well known locally as the doyen of South African geologists. He witnessed the first finds in the Cape Colony and was closely identified with the diamond mining industry of this country right from its earliest infancy and has been regarded as one of the leading authorities on diamonds for many years past. For some considerable time Mr. Draper has been engaged in investigating the diamondiferous occurrences of Brazil, and we now hear that he has succeeded in establishing the existence of a large and valuable mine or true diamondiferous pipe in the great South American State. Mr. Draper is reported to have made his find in the Diamantia district, and the property has been named the Buena Vista.

The Brazilian Industry.

It is interesting to recall the fact that in 1915 for the first time in the history of Brazilian diamond mining, diamonds were reported to have been found there in the matrix, rendering it possible to carry on regular diamond mining operations, instead of mere washing. This discovery is stated to have been made by Dr. Eberhard Rimann, who has devoted special study for many years to the South African diamond mines, and was called in 1912 to the National Geological Institute in Rio de Janeiro as chief mineralogist and petrographer. The Brazilian state of Bahia exported to the United States, in 1915, rough diamonds to the weight of 11,803 carats, and 3,714 carats of carbonados. The mining operations in this State are mainly carried on by small individual undertakings. Most of the diamonds were of $\frac{1}{2}$ carat or less, and the average price at which they were invoiced was about 18 dollars per carat. The carbonados sold at a higher figure. These "miners' diamonds," as they are sometimes called, because of their employment in drills, etc., were invoiced at the United States consulate in Bahia as follows: $\frac{1}{4}$-carat stones, 12 to 14 dollars; $\frac{1}{2}$-carat stones, 16 to 20 dollars; $\frac{3}{4}$-carat, 20 to 23 dollars; 1-carat, 25 dollars: 2-carat and upward, 35^2 dollars. Although diamond mining, or diamond washing, has been carried on continuously in the Brazilian fields since 1721 they are still far from exhaustion and each year the yield is sufficient to support several large and prosperous communities. Unquestionably the largest and richest pockets, such as pot-holes in the beds of the streams, have been worked out, yet the area over which diamond-bearing materials is spread is so extensivve that the diamond industry of the country will continue for many years to come. Minas Geraes, Bahia, Goyaz, and Matto Grasso, named in the order of their importance, are the States where diamonds are found. The maner of occurrence in all places is the same and the original rock matrix remains conjectural. It is believed, however, that they were originially contained in some igneous rock, probably a peridotite, and on its decomposition and disintegration, the diamonds were released and transported by streams to inland lakes, seas, or the ocean, where they were deposited with other minerals, mainly grains and pebbles of sand. Later these loose particles were cemented to form sandstones or conglomerates. In a few places, diamonds have been found in these firm quartzose rock, but not in workable quantities. When the rocks have disintegrated and the particles again concentrated by running water the diamonds are now found. First the stream gravels were worked but as they have been worked over, in some cases, several times, they now yield few diamonds and the higher-lying terrace gravels furnish most of the stones. At the Sopa mine in the Diamantia district an English company tried to work the ground on an extensive scale by means of steam shovels, but without success, although £250,000 was spent in the project, and in 1915 the expensive machinery was sold at great sacrifice. The irregularity of the diamond-bearing earth is such that the shovel method is the only practicable one. The concentrating work is done in part by means of jigs and in part by the batea. The lack of sufficient water to wash the gravels during the dry season greatly reduces the output of the Brazliian fields. The annual production of the country can only be guessed as the Government tax on the stones causes many of the producers to conceal their finds and to dispose of them secretly. Many of the stones are cut in Diamantina although the work is usually so poorly done that some are recut in America or Europe.

Further Details Awaited.

The true value of Mr. David Draper's discovery remains to be proved, but it goes without saying that further and more detailed reports of this Brazilian find will be read with deep interest in this country, which controls the diamond industry of the world. A paper by Mr. Draper on the diamondiferous deposits of Brazil will be read at the meeting of the Geological Society of South Africa on Monday evening next.

The fact that gold smuggling is taking place on a large scale is revealed by the following extract from the *Times of India*, under date of 28th ultimo: "On Monday the Karachi Customs officials seized 23,000 British and Turkish sovereigns being imported into India from the Gulf in a dhow. The coins were carefully concealed in packages of dates, and were only discovered by a Customs official probing the package of dates with a long steel needle which came into contact with something hard. The dates being unpacked, bundles of gold coin were discovered."

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January, February, March, 1920, we secured 13 out of 19 Certificates in S.A.

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

CHANGE OF NAME.

OSWALD FLETCHER LTD.
(Late S.C.H. Herbert & Fletcher Ltd.)

AGENTS FOR:—

BRUNTONS'---MUSSELBURGH
WIRE ROPES.

MOSES EADON & SONS LTD.,
SHEFFIELD.
STEEL, TOOLS, ETC.

BOX 2534. 1 & 2 CENTRAL HOUSE.
PHONE 4620. MAIN STREET.

If *repeat* orders furnish the best endorsement of service then the rapidly increasing number of big orders we are getting these days for

BARTLEITE JOINTING & STREBOR PACKINGS

must certainly prove that both lines are faithfully fulfilling every high claim we make for them, because so many of our orders are *repeat* orders.

We look for your first order, knowing that your *repeat* orders will follow.

MADE AT ARMLEY, LEEDS, BY J. W. ROBERTS, LTD.
BIG STOCKS ARE ALWAYS CARRIED BY THE SOLE
SOUTH AFRICAN AGENTS :—

BARTLE & CO., LTD., JOHANNESBURG

LOVEDAY HOUSE, LOVEDAY STREET. —— P.O. Box 2466. —— Phone 3553. —— Wires: "FAGGOT."

REMARKABLE SINKING AT THE NEW STATE AREAS.

Rand and World Records Broken—The Two Shafts nearing the Reef.

SOME remarkable sinking results have recently been achieved in the two shafts of the New State Areas. During March and for the first half of the current month the progress attained has been as follows: Feet sunk during March, north shaft 245, south shaft 270; feet sunk first half of April, north shaft 117, south shaft 127. The March results are records for sinking timbered shafts not only on the Rand but in all probability for the whole world, and the April figures (considering that Good Friday, when no sinking was done, fell within the first half of April) are almost equally good. So far as we can ascertain, the next best results obtained to these remarkable figures have been 233 feet on the Government Gold Mining Areas, 234 feet on Modder Deep, and 240 feet on Springs West.

HISTORY OF SINKING.

The history of sinking at these shafts may be worth recapitulating. Preliminary sinking of 145 feet was done at the north shaft, and the collar put in, and then the work was stopped pending the erection of the main sinking plant, consisting of two direct-acting engines, permanent headgear, and large three-ton sinking skips. The work of sinking was resumed on the 22nd April, 1919, and considerable difficulty was met with in the shape of water-bearing dolomite, difficult measures, and a strike of workmen, and as a result, progress was slow until September, 1919, when the shaft had reached a depth of 465 feet. Since September, and for the last six months, the total footage sunk was 1,254 feet, or an average of 209 feet per month. Preliminary sinking of 103 feet was done at the south shaft, when work was stopped pending the erection of the permanent sinking plant as in the case of the north shaft. The work of sinking was resumed on the 17th February, 1919, and until September, 1919, various difficulties in the form of dolomite containing considerable water, and 90 feet of green dyke which had to be cemented up, were encountered. Since September the work has been pretty straight forward, and the total footage sunk from October, 1919, to March, 1920, was 1,330 feet, or an average of 222 feet per month.

A SOUND POLICY.

The policy of the management on these shafts was not to attempt to deal with difficulties in the way of water and green dyke, and difficult measures generally, without an adequate equipment. The provision of four direct-acting engines and of large three-ton sinking skips in a shaft 26 ft. 3 in. x 11 ft. 3 in. within timbers, provides facilities which have hitherto not been provided for any other timbered shaft on the Rand. Judging from the footage being obtained and particularly from the uniformity of results month after month, the policy has been fully justified. Holman sinkers are being used throughout.

DEPTHS AT DATE.

The depths of these shafts on the 15th April were: North shaft, 1,836 ft.; south shaft, 2,291 ft. The continuance of results like these will bring the New State Areas to the developing stage in a much shorter period of time than was generally anticipated.

Zaaiplaats Tin.

The Zaaiplaats results for the month of March, 1920, are as follow: Mill ran 8 days; concentrating plant ran 30 days on accumulated product; concentrates won, 22 tons; estimated profit for the month, £607 4s. 10d.; capital expenditure, £53 2s. 9d.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

SOUTH AMERICA

HEAD OFFICE:
MONTREAL, CANADA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE — Buenos Aires.
BRAZIL — Rio de Janeiro, Santos, Sao Paulo.
URUGUAY — Montevideo.
VENEZUELA — Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA — Barranquilla.
BR. GUIANA — Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON — Princes St., E.C.
PARIS — 28, Rue du Quatre-Septembre.
NEW YORK — 68, William St.
BARCELONA — Plaza de Cataluna 6.

THE ROYAL BANK
OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - $500,000,000

MINING QUESTIONS IN THE UNION ASSEMBLY.

Mining Leases—The Cinderella Deep and Coal Rebates.

Amongst questions of mining interest answered in the Assembly this week were the following:

Mr. Hills asked the Minister of Mines and Industries in the Assembly: (1) If it was the intention of the Government to call for tenders for the leasing of all or portions of the remaining Government ground on the East Rand. (2) If so, whether the Government would give the House an opportunity of discussing the terms before any agreement was entered into? The Prime Minister replied: It is not the policy of the Government to advertise new areas for lease until they had been sufficiently proved by the development of adjoining mines so as to secure a reasonable prospect of obtaining satisfactory tenders. There is no intention at present to call for further tenders.

Cinderella Deep.

The Minister of Mines told Mr. McMenamin that he was aware that the Cinderella Deep mine, which formerly gave employment to a large number of men, had been closed down for some years despite the fact that the developed portion of the mine showed payable results. He also knew that the reason assigned for the continued cessation of work was that satisfactory financial arrangements for further development could not be effected during the War. The hon. member asked further whether, in view of the need for providing employment, the Government were prepared (a) to call upon the company to resume work within a reasonable time, or (b) to cancel the company's titles and work the property on behalf of the State? The Minister answered both points in the negative, saying that the Government was satisfied that the company had the same difficulty in raising funds to-day as had existed during the War.

Coal Rebates.

Mr. Jamieson asked the Minister of Railways and Harbours for what reason (1) the rebate on coal exported beyond South Africa had been increased from 10s. to 11s. per ton; (2) the rebate of 11s. per ton had been extended to bunker coal taken by ships loading up with cargo coal for ports beyond South Africa; and (3) half the port dues was rebated to ships loading up with cargo coal for ports beyond South Africa; and (4) in view of the said rebates on coal which is tantamount to a reduction in the rate of 1s. per ton on coal under heading (1), and to a reduction of 11s. per ton on coal under heading (2) plus the rebate under heading (3), whether the Minister would take into consideration the desirability of reducing the rates on the people's necessities. The Minister replied as follows: (1) Because of an increase in the rate in excess of the extra 1s. rebate. (2) To encourage ships to carry South African coal for export. (3) Half the port dues are not rebated, but reduced port charges are levied on ships which call solely for bunker or export coal, this being done to attract shipping to Union ports. (4) No, for the reason that in the one case prices are seriously affected by the railway rate, whereas in the other they are not, as is evidenced by the fact that the retail prices of certain imported commodities are higher in the coast towns than in Johannesburg. The rates on imported wheat, wheaten meal and flour have recently been reduced and statements have been published by the Administration showing the negligible effect of railway charges upon the prices of household commodities.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

OUR SPECIALITY!
(NOT TO BE BEATEN).

MAGNETOS
! F. HOPPERT. !
MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:

Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

THE YEAR WITH THE ROBINSON DEEP.

The consulting engineer's report on the Robinson Deep for 1919 states: A comparison of the results obtained during the last four and a half years is as follows: 18 months to 31st December, 1916: Tons milled, 965,400; yield per ton, 28s. 7·957d.; costs per ton, 19s. 7·392d.; profit per ton, 9s. 0·565d.; total profit on working, £436,705. 1917: Tons milled, 561,400; yield per ton, 27s. 6·296d.; costs per ton, 22s. 5·295d.; profit per ton, 5s. 1·001d.; total profit on working, £142,691. 1918: Tons milled, 529,300; yield per ton, 26s. 11·764d.; costs per ton, 25s. 8·245d.; profit per ton, 1s. 3·519d.; total profit on working, £34,225. 1919: Tons milled, 580,500; yield per ton, 31s. 1·996d.; costs per ton, 25s. 10·920d.; profit per ton, 5s. 3·076d.; total profit on working, £152,567. In calculating the yield per ton for the year 1919, no account has been taken of 1,213 ozs. of gold placed to reserve gold account. Included in the working profit for 1919 is £93,548 12s. 10d. which is the amount estimated will be obtained through the premium on gold. The average working cost for the year 1919 was 25s. 10·920 per ton, or only 2·675d. per ton higher than that for 1918. There was actually an increase in the cost of mining and pumping of 10·995d. a ton, but this was offset by a reduction in the cost of development of 9·352d. per ton accounted for by the more normal conditions under which this work was done. It should be realised that the average cost per ton for 1919, viz., 25s. 10·920d., was considerably exceeded during the latter portion of the year, rising to 28s. 2d. in the month of December. Owing to the higher wages now being paid to both white and native labourers, coupled with the increased cost of stores, it will be difficult to maintain the working costs at the average of 1919. The development footage accomplished during the year amounted to 8,069 feet, as compared with 8,143 feet, or practically the same amount during 1918. Both values and widths continue good in the lower levels. The ore reserves are estimated at 1,583,000 tons of fully developed ore of an average value of 6·59 dwts. per ton over a stoping width of 62 inches, and 29,000 tons of partially developed ore of an indicated value of 5·41 dwts. over a stoping width of 57 inches. I wish to place on record my appreciation of the able manner in which Mr. Wessels and his staff have conducted the operations of the mine during the year.

Electric Welding.

In reviewing developments in the electrical industry during 1919, Mr. J. Lister states in the *General Electric Review* that the rate of increase in the use of electric welding is indicated by the fact that in 1918 the number of welding outfits sold was more than double that of any preceding year, while 1919 in turn gave a further increase of 100 per cent. over 1918. A new D.C. welding outfit was produced which delivers current directly to the arc at the required pressure without the use of any form of ballast resistance or external regulating device This resulit is obtained by means of a dual magnetic circuit, one section of which generator constant potential in part of the armature by means of a shunt field excited from this part of series field cause a varying voltage in the other part of the armature winding. The constant potential is 30 volts, while the other component varies from plus 30 volts on open circuit to minus 30 volts on short circuit. The generator rating is 200 amperes, no exciter is required, and either A.C. or D.C. motor or belt-drive can be used. The outfit is self-contained, including a control panel, and is compactly mounted so that it can be readily moved about, and weighs about 1,300 lbs. A new automatic welding machine, for depositing the armature winding, while the armature reaction and a differential metal varying in thickness from 25 mils to 0.25in., was also developed for use, for instance, in increasing the diameter of a shaft by means of a self-feeding wire electrode, the shaft being rotated as in a lathe during the operation. The machine consists of a pair of rolls which are driven at varying speeds by a D.C. shunt wound motor. The rolls deliver the electrode wire to the working face, and when the arc is drawn, the field and armature of the motor are instantaneously influenced by the voltage across the arc and respond by increasing or decreasing the rate of feed of the wire, thereby regulating the length of the arc to the value for which the machine is adjusted. Above the feed rolls wire straightening rolls are provided to ensure accurate feeding of the wire and the proper location of the arc. The machine may be operated from any D.C. welding circuit, and will use any size of electrode, up to its mechanical limits, with equal precision in operation, as neither of these factors enters into the question of the rate of feed control, which is governed solely by the voltage across the arc. The complete outfit is very compact, being 4ft. wide, 18in. wide, and 6in. high.

The National Bank of South Africa, Limited.

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the ORDINARY GENERAL MEETING OF SHAREHOLDERS will be held in the Bank Buildings, Pretoria, Transvaal, on WEDNESDAY, the 23rd JUNE, 1920, at 3 o'clock p.m., for the following purposes:—

1. To receive and consider the Balance Sheet of the Bank's operations for the year ended 31st March, 1920.
2. To receive the Report of the Directors and Auditors.
3. To confirm the appointments by the Board of Mr. J. R. Leisk, C.M.G., and Mr. E. C. Reynolds as Directors of the Bank.
4. To elect three Directors in place of the Hon. Hugh Crawford and Messrs. J. B. Taylor and J. Emrys Evans, C.M.G., who retire in terms of the Trust Deed, but are eligible and offer themselves for re-election.
5. (a) To fix the remuneration of the Auditors for the past audit; and
   (b) To appoint Auditors for the ensuing year. Mr. Robert Baikie and Messrs. Dougall, Lance and Webber offer themselves for re-appointment.
6. Transaction of General business.

The Head Office (South Africa) and the London Share Transfer Registers of the Bank will be closed from the 24th to 31st May, 1920, for the purposes of this Meeting and for any dividend that may be declared thereat.

Attention is drawn to the following: Holders of Share Warrants to Bearer are entitled to vote by proxy. Such Shareholders desiring to be present or represented at the Meeting must deposit their Share Warrants at either of the places, and within the times, stated below:—

(a) At the Head Office of the Bank, in Pretoria, at least Three Days before the day fixed for the Meeting.
(b) At any of the Branches of the Bank in South Africa at least Eight Days before the Meeting.
(c) At the London Office of the Bank, Circus Place, London Wall, E.C.,
(d) At Messrs. Cox & Co. (France), Ltd. 22 Rue Louis le Grand, Paris.
(e) At the Rotterdamsche Bankvereeniging, Amsterdam.
At least Thirty Days before the Meeting.
(f) At the New York Agency of the Bank, 10 Wall Street, New York, at least Forty Days before the Meeting.

The instrument appointing a proxy must be deposited at the Office in Pretoria, not less than 48 hours before the time fixed for the Meeting at which the person named in such instrument proposes to vote.

By Order of the Board of Directors,

C. P. MATHEWS.
Secretary.

Pretoria, 23rd April, 1920.

TRADE
JENKINS
MARK

Diamond Trade Mark
—the positive means of identifying
Genuine Jenkins Valves

OBTAINABLE ONLY FROM
C. WHARTON HOOD & CO. (S.A.), Ltd.
P.O. Box 6096. 'Phone 973.
Offices: SOUTHERN LIFE BUILDINGS,
HARRISON STREET, JOHANNESBURG.

THE POSITION OF THE CROWN MINES.

Points from Directors' and Consulting Engineer's Reports.

In the course of their annual report for 1919 the directors of the Crown Mines, Ltd., state: Particulars of the results of last year's operations, the development accomplished and the ore reserves and values are dealt with in the annexed reports of the consulting engineer and general manager. The operations show a working profit of £464,114, exclusive of premium on gold, which is an increase of £53,472 over the profit of the previous year. Considering the further increase which has taken place in working costs, this result is satisfactory and is chiefly due to the milling of 84,000 tons in excess of the tonnage of 1918 and an increase in the value of the yield obtained of 8d. per ton. Allowing for the additional price received on all gold produced from about the middle of July, which is equal to a premium of 22·7 per cent., the working profit is increased by £286,309 to £750,423. At the end of the financial year the ore reserve was estimated at 8,451,000 tons of an estimated value of 6·3 dwts., showing an improvement in the reserve of 153,300 tons, the value being fractionally lower. Owing to the shortage of native labour during the period under review it was not possible to carry out the maximum scale of operations. Since the opening of the new year, however, the supply has improved and it is hoped to make good progress in the current year with development. Attention is drawn to the consulting engineer's remarks regarding the encouraging values obtained in the development south of the South Rand dyke. The working profit, including the premium on gold for the year amounted to £750,422 11s. 6d., from which has been deducted the difference between sundry expenditure and revenue, details of which are shown in the working expenditure and revenue account, amounting to £30,552 3s. 11d., the chief items of expenditure being for debenture interest and donations and contributions to War relief funds, etc. The net profit of £719,870 7s. 7d. has been carried to appropriation account and with the balance unappropriated at the commencement of the year £348,696 15s. 3d., and forfeited dividends £1,596 5s. 5d., making a total of £1,070,163 8s. 3d., has been dealt with as follows:—Expended on capital account: Property, development and equipment, £90,895 12s. 10d.; annuity in respect of undermining rights acquired from Government, £29,905; purchase of debentures, £84,700—£205,500 12s. 10d.; less amount received under the Bewaarplaats Moneys Application Act, 1917, £22,035 6s. 10d.—£183,465 6s.; premium on debentures purchased during the year, £486 8s. 9d.; Government taxes, £106,704 17s. 9d.; dividends Nos. 36 and 37, £376,042 8s.—£666,699 0s. 6d.; leaving a balance unappropriated at 31st December, 1919, represented by cash, investments and cash assets, less liabilities and excluding the liability of outstanding debentures £188,800, £403,464 7s. 9d.—£1,070,163 8s. 3d. This balance is made up as follows: Shares and interests in co-operative and other concerns, £36,654 11s. 6d.; stores and materials, etc., £191,455 7s.; sundry debtors and payments in advance, £39,977 11s. 6d.—£268,087 13s.; net cash and investment after allowing for liabilities (excluding debentures outstanding, £188,800), £135,376 11s. 9d. In accordance with powers vested in the directors under the debenture trust deed they purchased during the year debentures of the nominal value of £84,700, thus reducing the debentures outstanding to the amount of £188,800. These purchases were applied in satisfaction of the obligation of the company to redeem £85,000 debentures at £103 per cent. by a sixth drawing of debentures, which would otherwise have taken place in November, 1919. The difference between the nominal value of debentures purchased to date, £511,200, and the net cost thereof, £503,532 2s, 6d., is £7,667 17s. 6d., in addition to which there is a saving of £15,336, being 3 per cent. premium, which the company would have had to provide had the debentures been redeemed by annual drawings. During the year debenture interest coupons Nos. 14 and 15 accrued and were payable on the due dates, viz., 1st July, 1919, and 1st January, 1920.

The consulting engineer-writes in his report:

I endorse the report of your General Manager, Mr. A. J. Walton, for the year ended 31st December, 1919. The report gives in detail the work done during the year under review. The native labour supply was at no time during the year sufficient to carry out the maximum scale of operations. The results show a considerable improvement in working profit, exclusive of the premium on gold. With the addition from that source, the working profit amounted to £750.423. The wages bill, the cost of stores and material and the miners' phthisis contributions, have been very much increased during the year; but, owing to the larger tonnage milled, the increased cost per ton is not so great as would otherwise have been the case. In spite of the increased output, the extra cost due to the above-mentioned items has increased the cost per ton milled as compared with the previous year by fourpence, representing a sum of £32,400. It should be noted, however, that there has been a steady improvement during the year, the cost per ton milled being lowered with an increase in the tonnage milled, whilst the grade of ore mined has not been allowed to fall. This is very satisfactory. Considerable progress was made with the development in new areas, there being a material increase in footage driven, whilst reef disclosures, on the whole, were satisfactory. The Main Reef Leader values proved consistently payable and of good value; the South Reef is more patchy; encouraging values, however, were disclosed on the 15th and 16th levels, western section. It is interesting to note that on the south side of the large South Rand dyke, which was opened by the 19th and 17th level crosscuts, good values were obtained on the Leader, which is encouraging: again, the South Reef here is of less value than the Leader Reef. Little so far has been done in this new area to give any indication of what values can be expected on the south side of the dyke. The details, with values, are given in the manager's report. It is not intended to extensively develop the southern area for a time, *i.e.*, until the main connecting drives to the deep level shafts and sub-vertical shafts have been holed. In the meantime, the opening up of the undeveloped area in the western section, between the 13th and 19th levels, will be accelerated; and No. 12 shaft, situated in the extreme western portion of your property, will require to be walled and equipped with cages during the next year; up to the present this shaft has been used chiefly as a ventilating shaft. The sinking of No. 15 deep level shaft, 3,114 feet from the surface, has been done in record time, and the work as a whole for the opening up of the southern area is well ahead of time. Fortunately, the new year has opened with a fair supply of native labour; we therefore hope to make good progress in the current year with development, and increase the tonnage mined as compared with the year under review. The sum standing to the credit of the account for increased development stood at £40,239 at the end of 1919. The ore reserve position, re-estimated at 31st December, 1919, was as follows Main Reef Leader 5,182,500 tons, value 6·85 dwts, stoping width 63 inches; South Reef 3,268,900 tons, value 5·45 dwts., stoping width 63 inches; total 8,451,400 tons, value 6·3 dwts, stoping width 63 inches. The new figures show an improvement in the reserve of 153,300 tons; the value is fractionally lower, and the stoping width on which the figures are based also shows a slight reduction of 2 inches in the Main Reef Leader and 1 inch in the South Reef. Of the above total, 1,245,900 tons at 7·4 dwts. value are at present unavailable for production, as they are required for shaft and safety pillars. The General Manager, Mr. A. J. Walton, Joint Managers, Messrs. Beaumont and Lange, and staff, have been untiring in their efforts on the company's behalf, and have been markedly successful in improving the general position.

African Banking Corporation, Ltd.

Authorised Capital - - - £2,000,000
Subscribed Capital - - - £2,000,000

Paid-up Capital - - - £1,000,000
Reserve Fund - - - £ 360,000
Reserve Liability of Shareholders - £1,000,000
£2,360,000

Head Office: 63, London Wall, London, E.C.

Branches throughout South Africa and Agents and Correspondents throughout the World.

IMPROVED OUTLOOK OF THE DURBAN ROODEPOORT DEEP.

The consulting engineer's report on the Durban Roodepoort Deep in 1919 is as follows:

The following figures compare the results from the mine for the years 1917, 1918 and 1919:—1917, tons milled, 313,850; 1918, 300,450; 1919, 263,100. Yield per ton milled at standard price of gold: 1917, 27s. 9d.; 1918, 30s.; 1919, 25s. Working costs per ton: 1917, 24s. 8d.; 1918, 28s.; 1919, 31s. 11d. Profit per ton at standard price of gold: 1917, 3s. 1d.; 1917, 2s.; 1919, loss 3s. 11d. Profit at standard price of gold: 1917, £48,837; 1918, £30,068; 1919, loss £50,995. Revenue from premium on gold, 1919, £35,946. Total working profit: 1917, £48,857; 1918, £30,068; 1919, loss £15,049. Development footage: 1917, 8,759; 1918, 6,679; 1919, 9,205. Ore reserve tonnage: 1917, 1,174,200; 1918, 1,078,500; 1919, 1,077,500. Average value of ore reserve: 1917, 6·5 dwts.; 1918, 6·5 dwts.; 1919, 6·6 dwts. Average coloured labour strength: 1917, 2,915; 1918, 2,889; 1919, 2,655. The year's work resulted in a loss of £50,995, which sum excludes the estimated realisation on gold premium. Compared with the previous year there was a fall in the tonnage milled of 37,350 tons, due to extreme shortage of native labour and loss of tonnage in June and July, when the No. 1 shaft—the main hoisting way—was hung up for nearly a month for repairs; a decrease in the yield of 2s. per ton, which was affected by a reduction in the percentage sorted; an increase in the costs of 3s. 11d. per ton; this latter was largely due to abnormal expenditure made in repairs to No. 1 shaft, the reconditioning of underground equipment, and the large increase in wages and stores, and to increased payments made for miners' phthisis compensation. Allowing for the gold premium of approximately 22·7 per cent. on all gold produced since about the middle of July, the loss was reduced to £15,049. As previously reported, a circular shaft is being sunk to open up the deeper levels, as the existing compound shafts cannot be relied on and their upkeep is a great expense. Unfortunately, during the past year No. 1 incline shaft had to be put out of commission for nearly a month, owing to the heavy falls and movement of ground that were taking place in the shaft. Since the completion of these necessary repairs no further trouble has been experienced in this direction and the shaft is now in good order. It has now been decided to sink the circular shaft 400 feet deeper than originally intended, namely, to a depth of 3,400 feet. This has been recommended, as the extra sinking will not delay the completion of the programme, and will enable the shaft to command a greater area above it, and at the same time expedite development. At the time of writing the shaft has attained a depth of 1,826 feet, and an additional 1,574 feet will complete the sinking. When completed this will enable the whole of the rock hoisting and the greater part of the work of hauling men and material to be effectively concentrated at an up-to-date and reliable shaft. The older shafts will then be only utilised for ventilation and as secondary outlets. It has already been found necessary to abandon No. 3 shaft, which was crushed beyond repair. The mine has always been considered essentially a "hammer boy mine," on which basis it was equipped. Owing, however, to the continued shortage of native native and the limited air compressor plant available for the increase in the number of machine drills necessary to maintain the output of ore, it has been difficult to supply the mill to its full capacity. The agreed addition to the compressor plant and the installation of an additional number of small machine drills should help to remedy the shortage of ore mined from which the property suffered during the year under review. It must, however, be realised that considerable care and skill is required to work machines efficiently in the narrow South Reef stopes of this mine. Main Reef stopes are being worked successfully by machine drills, as the conditions for machine mining in this reef are more favourable than are those in the South Reef. The present estimated cost for sinking the circular shaft to the depth of 3,400 feet, and its equipment, together with surface tracks to the mill, new crusher station and additions to compressor plant, etc., amounts to £271,500; of this amount £77,500 was expended to the end of the year, leaving £194,000 yet to be expended. Despite the fact that development has been considerably hampered by constant flooding in the deepest part of the mine (due to failure of the pumps in dealing with muddy and acid water caused by the excessive watering) the footage accomplished during the year resulted in an additional 2,500 feet being added to the total of 1918, but the total of 9,205 is still short of what is required to maintain the present ore reserves when working at full milling capacity. Provision has now been made for filtering and neutralising the water, and during the current year there should be a decided increase in the footage developed and consequent improvement of the ore reserve. The development values were, on the whole, quite satisfactory, the South Reef being practically payable throughout. The Main Reef is only developed in selected areas and about 30 per cent. of the total mine area developed to date has so far proved payable. The reef width and stoping width are, however, greater than in the case of the South Reef, but the value, on an average, ranges from 6 to 7 dwts. The total payable tonnage developed in both reefs amounted to 418,700 tons for the year of an average value of 6·6 dwts. A re-estimation of the ore reserve has been made, as at December 31st, 1919, which shows as follows: Main Reef, 446,100 tons, value 6·2 dwts.; South Reef, 631,400 tons, value 6·8 dwts.; total, 1,077,500 tons, value 6·6 dwts. Included in the reserve are 172,000 tons of shaft and boundary pillars. The total tonnage compared with the previous year is practically unaltered, but the valve is improved by ·1 dwt. The capital expenditure has been heavy and totalled £54,738. Details of this expenditure has been given in the manager's report. The chief item was the cost of sinking and equipping the new circular deep level shaft. When the programme of new work is completed, *i.e.*, the completion and equipment of the new shaft and the arrangements for the abandonment of the old shafts, I have every confidence that a steady and permanent improvement will be shown. During the year the mine has been extremely short of native labour, particularly in the latter half, but the supply is at present much improved, combined with a premium on gold of approximately the figure ruling to-day, should now enable the mine to earn a fair profit and thus relieve the financial position. I wish to record the loyal and hard work done by your manager, Mr. C. Glyn, and the whole staff during a very trying year.

FURNACES
For all purposes.
50% Saving in Fuel.
COAL, COKE, OIL, GAS, WOOD, etc.
THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

THE VILLAGE DEEP—A YEAR'S RESULTS.

The consulting engineer's report on the Village Deep in 1919 is as follows: The year's work resulted in a profit to the company of £105,912, or 3s. 11d. per ton milled. This profit includes £80,101, the estimated premium realised on all gold produced from July, 1919 to 31st December, 1919, reckoned at an average of approximately 23 per cent. above the standard price of gold during that period. The effect of the increases in wages, stores and other charges to the industry during the year has left very little margin of profit on this mine. The difficulties of working to a depth of 5,800 feet make it very unlikely that a reduction in the costs of mining can be expected. One of the chief increases in mining costs is the amount of support necessary to keep the mine open for stoping; and at a dip of 40 degrees, large quantities of timber and packs are required to support the workings. Future profits will depend on the amount of premium obtained for the gold recovered, a reduction in cost of stores and materials, and a fair labour supply. The ore reserve as re-estimated at 31st December, 1919, is as follows:—Main Reef Leader: Blocks, 1,829,300 tons, value 6·4 dwts.; pillars, 508,900 tons, value 5·9 dwts.; total, 2,338,200 tons, value 6·3 dwts. South Reef: Blocks, 51,500 tons, value 7·2 dwts.; pillars, nil; total, 51,500 tons, value 7·2 dwts. Totals and averages: Blocks, 1,880,800 tons, value 6·4 dwts.; pillars, 508,900 tons, value 5·9 dwts.; total, 2,389,700 tons, value 6·3 dwts. The tonnages are based on a stoping width of 61 inches and 55 inches for the Main Reef Leader and South Reef respectively. Compared with the previous year, the total reserve shows an increase of 62,500 tons, whilst the value is unchanged. The available reserve shows an increase of 77,800 tons. The tonnage of payable ore developed for the year was 550,850 tons, valued at 6·0 dwts. per ton. Only ore of 5 dwts. and over is included in the reserve; 80 per cent. is between 5 and 7 dwts., and 20 per cent. above 7 dwts. Payable South Reef so far has only been found in the western portion of the mine down to the 11th level. The tonnage partially developed but not completely valued at the close of the year is estimated at 402,000 tons; the greater portion of this tonnage is likely to be payable. Capital expenditure has been heavy for the period under review; the larger items have been incurred in providing additional pumping plant and equipment, detailed in the manager's report. Looking forward to the exhaustion of neighbouring outcrop mines, a central pumping scheme to deal with their water is being considered. The company will have to share in the cost of this plant. The manager and his staff have done what they can to meet increased difficulties, and they are to be congratulated on their efforts.

Modder West Mine.

The general manager of the Modder West G.M. Co., Ltd. (Mr. H. Rose-Martin) reports the following progress during the month of March:—Development footage: Main drives and crosscuts, 48 ft.; other drives (winzes and raises), 130 ft.; total footage, 178 ft. Ore hoisted: From development, 356 tons; added to surface dump, 208 tons. Mill statistics: Stamps, 5; mill ran, 4·8 days; ore crushed, 147·8 tons; plate recovery, 3·25 dwts. per ton. The mill only ran for a brief period owing to boiler trouble—since rectified. The plates are still absorbing gold and the recovery of 3·25 dwts. over the plates does not represent the actual plate recovery value. The ore crushed was unsorted development rock taken over great widths, and from 14 widely separated faces of varying depth. The mill results to date have, however, confirmed the assay values of the month's development which average 8 dwts. over 65 inches for 284 feet of sinking, driving and raising. The values are consistent throughout and refer to the "A" reef alone, no further development having been done on the "B" series. Water was met with in winzes Nos. 3, 4 and 6, but no trouble is anticipated therefrom, the pumping capacity being able to cope with the inflow. 200 tons only have been extracted from the 10,000 tons of ore blocked out from stoping. The prospecting work is being pushed ahead vigorously, and up to the end of March both the "A" and "B" bodies have been proved along a strike of 3,000 feet and the sampling results disclose a remarkable uniformity of value throughout the entire length of the strike. I am unable to give the correct dip of the reef on the western strike owing to most of the winzes disclosing that the reef is going down almost vertically. It is also impossible to estimate the tonnage per claim until the dip and extent of same can be ascertained. I understand that the well-known prospector, Mr. Kerr, who is working on our southern (Van Ryn) boundary has struck the extension of one of our reef bodies and assays from one of the banket bands have returned 49·9 dwts. to the ton, values in conformity with the assay results obtained from the corresponding reef in the Modder West claims.

Surface Plant.—Owing to the absence of provision for adequate lighting of the surface works, it has been impossible to run the mill at night, but a lighting plant is now nearing completion and I anticipate that the mill will run continuously from May 1st. The native compound, a substantial brick structure will be completed and occupied by the end of April and from that date no shortage of native labour is anticipated. As the development and prospecting to date have disclosed such important results, the life of the mine is positively assured for many years with a much larger plant than now working.

PHONE 4673 BOX 3162

OSBORN'S
"HAND AND HEART" DRILL STEEL
Solid and Hollow.
LARGE STOCKS CARRIED LOCALLY.
SAMUEL OSBORN (South Africa) Ltd.
SHEFFIELD & JOHANNESBURG.

Rhodesia's Mineral Output.

The value of the total mineral production of Southern Rhodesia for February has been declared at £320,609 (including £62,441 in premiums) which is a decrease of £18,147 by comparison with the January return. The gold output is, however, £38,169 better, the difference being accounted for by variation in the selling price of the product. The largest gold producer in the country was the Shamva, which, with 56 Nissen stamps and 11 tube mills, crushed just under 50,000 tons for a recovery from the plates of £12,689 and from sands and slimes of £21,082. Next to this comes the Globe and Phoenix, which, with 40 stamps and 12 pans, recovered over £25,000. The Lonely, with 20 stamps and 3 tube mills, comes third, the output of this mine from 4,300 tons being between £23,000 and £24,000. The following is a summary of mineral production in the territory for February, 1920:

Gold (ozs.)	14,236·62	£250,020
Silver (ozs.)	13,725·25	3,943
Coal (raised 48,382 tons)—(sales)		17,546
Coal used for Coke and Bricks (estimated value)		4,372
Copper (Blister)—(tons)	249·64	12,701
Chrome Iron (tons)	3,460·08	14,385
Asbestos (tons)	832·30	16,649
Arsenic (tons)	10·90	423
Tungstic Ores (adjustment) ...		49
Mica	2 tons 410 lbs.	551
Total		£320,609

The value of the above gold output includes £62,441 premium. It is explained that the delay in issuing the return is due to the railway strike.

Against Decimal Coinage.

The report of the committee appointed to inquire into the advisability of the adoption of a system of decimal coinage in the United Kingdom is likely to prove a great disappointment to those who wish to see the British monetary system assimilated to those of Continental States. For the revision and simplification of the tables of weights and measures there is a great deal to be urged, but in the case of the currency it is a matter of "best left alone," and it is to this conclusion that the committee has come. The vital portions of the report are included in the following extracts:

> "In our opinion a large part, including the least instructed portion of the community, reckons its income and expenditure in terms of shillings and pence, and we are satisfied that it is idle to expect that the public would readily accept the disturbance created by the interference with their habits and the basis of their established notions of value by a change for which they have expressed no desire, and which will not benefit them except in so far as they keep accounts. They would regard the convenience which the change would afford to bankers, exporters and manufacturers and to industries as purchased at the cost not only of great inconveneince to themselves but of a rise in prices. We are satisfied that its introduction would provoke widespread opposition. . . . In our opinion, therefore, it is not advisable to make any change in the denomination of the currency and money of account of the United Kingdom with a view to placing them on a decimal basis."

The advantage of having such a high unit as the £ sterling is sufficiently obvious in the reduction of the number of figures employed in commercial calculations, and the only difficulty in regard to the present fractional system is that it requires greater mental power to use properly. It is significant that the committee emphasises the point that opposition to the existing system is based partly on the argument that it entails some expenditure of time in the schools which might be devoted to other purposes. But it is, when learnt, "admirably suited to the needs of everyday life."

Madagascar Oil Flotation: French Criticism.

The Paris *Matin* draws attention to the recent registration of an English limited liability company, with a capital of £200,000, to purchase an option of 20,000 hectares of oil-bearing lands in the Province of Majunga, Madagascar. Professor David Levat, of the Paris School of Mines, was the first to point out the existence of oil-bearing lands in Madagascar. In his book, "The Mineral Wealth of Madagascar," he says that as far back as 1901 a French colonist named Dreiz discovered bitumen in the same district, but conditions at that time did not admit of working the lands. The *Matin* says the French Government is, according to report, considering the advisability of declaring all oil-bearing lands in Madagascar a State monopoly. Comments made here on this statement are generally that no foreign company should be allowed to exploit oil lands in a French colony.

PERSONAL.

Sir Lionel Phillips, Bart., Sir Evelyn Wallers, and Mr. Kelsey have sailed for England.

* * * *

Mr. V. Grindley Ferris, one of the engineers of the Consolidated Gold Fields of South Africa, and who was going into partnership with the late Mr. C. D. Leslie as private consulting engineers, has now commenced practice on his own account with offices at Adderley House, Eloff Street, Johannesburg.

* * * *

His many friends will be glad to hear that Mr. Arthur French has been elected a director of the General Mining and Finance Corporation, of which institution he has so long been manager in Johannesburg.

* * * *

A recent issue of the *London Gazette* contains notice of the appointment as Commander of the Civil Division of the Order of the British Empire of Professor J. G. Lawn, Controller Explosives Supply Department, Ministry of Munitions, late Professor Johannesburg School of Mines. Prof. Lawn is now, of course, Managing Director of the "J.C.I." in Johannesburg.

* * * *

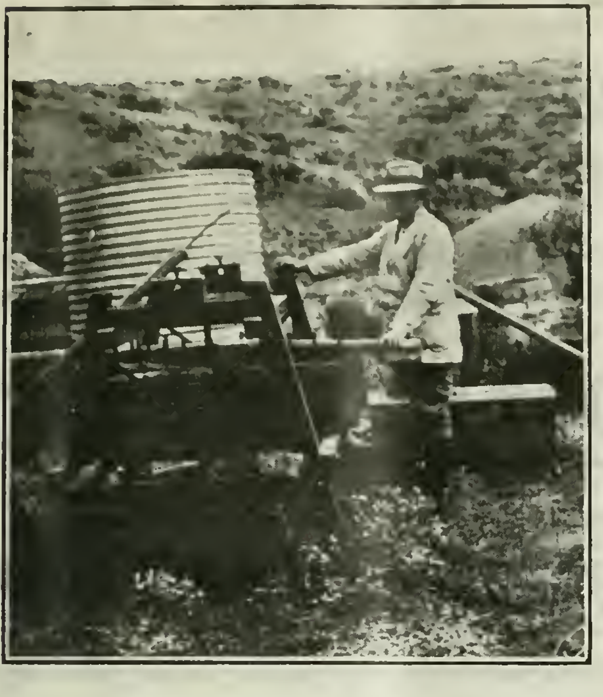
Mr. M. McCormack, who has been secretary to the Rand Water Board for 15 years has resigned and has been appointed to a post in the service of the Union Corporation. The Finance and General Purposes Committee of the board recommend the acceptance of his resignation with regret, and that Mr. J. H. Stevenson the present assistant secretary and treasurer be appointed secretary and treasurer.

GOLD, SILVER & COPPER ORES,
SLAGS, ETC.
The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.
For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

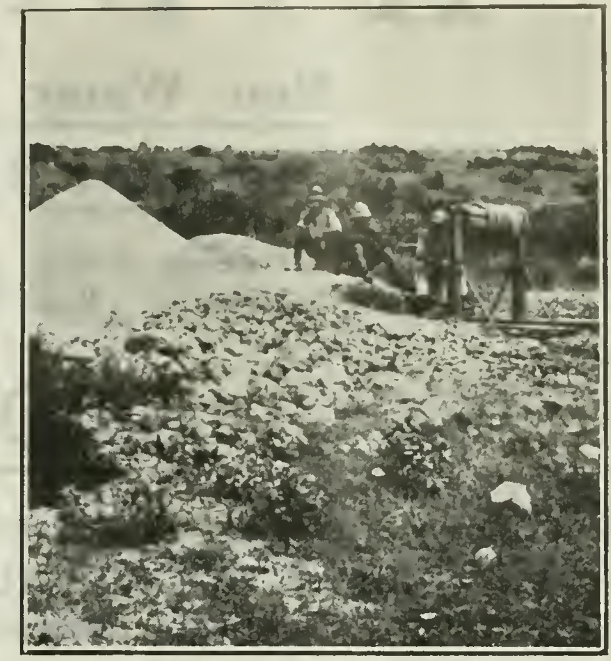
The "Kelco" Patent Shovel Point.
To Gold, Copper, Tin and Base Metal Mining Companies, P.W.D., Railways, Municipalities, Quarry Owners, Contractors, Etc., Etc.
CUT YOUR SHOVEL BILL IN HALF.
"BRINGS DOWN WORKING COSTS."
Full particulars from the SOLE AGENTS FOR SOUTH AFRICA:
KELLY & COY., Mining Material Merchants and Contractors,
42, WINCHESTER HOUSE, JOHANNESBURG.
Application for Sub Agencies outside the Witwatersrand invited.

THE POSTMASBURG DIAMOND FIELD.

Some Further Views.



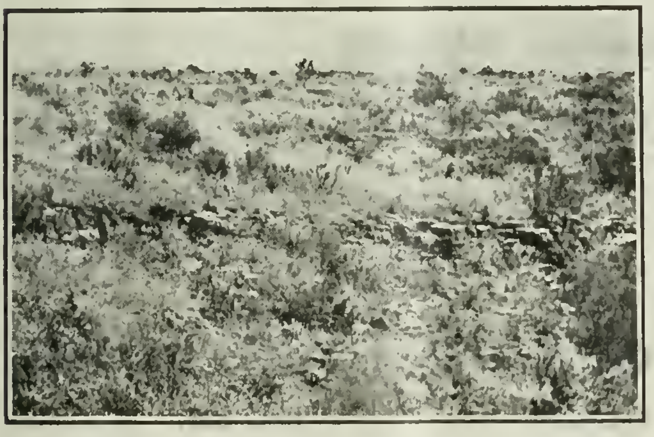
Kouwater (Emerald Diamonds): 4 ft. 6 in. Pan for the Test Wash.



One of the Shafts on Kouwater.

Wall of the Mine on Kouwater (Emerald Diamonds).

The Makganyene Mine.



Another View of the Wall of the Mine on Kouwater (Emerald Diamonds).

Looking across Kouwater to Makganyene No. 2 Emerald Diamonds Workings in the near foreground

"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 90-lbs. It is Suitable for Stoping, Raising and Driving.
Low Air Consumption. It drills 30% faster than any other drilling machine.

No Mine Manager can afford to neglect the economic merits of the - - - - 'HYDROMAX' The Fastest Rock Drill in the World.

We have exclusively manufactured drills for thirty-seven years and the "HYDROMAX" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
CARN BREA, CORNWALL (Wm. C. Stephens, Managing Director).

Agents— WM. HOSKEN & CO.,
Phones 4113/9. Box 667, JOHANNESBURG. Telegrams: "HOSKEN."

WM. HODGSON & SONS
(Weighing Machinists) LIMITED,
MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,
WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—
Geo. GRADOCK & Coy. (S.A.) Ltd.
Box 316. Tel Add. "Ropes" Tel. 539.

THE WEEK IN THE SHAREMARKET.

Outlook Uncertain—Gold Stocks Easy—Silvers Steady—Postmas in Favour.

The sharemarket, although it has experienced no serious setbacks during the past week, is still in a weak and nervous state. At the moment of writing New Modders are quoted at 70s., Modder Deep at 46s. 6d., and Springs Mines at 47s. These prices are typical of the low levels to which Far East Rand stocks have fallen, and it is unquestionable that at these prices good dividend-earning shares offer most attractive opportunities to investors. Take Modder Deeps, for example. If the gold premium be taken into account, this company has already earned in profit during this year the greater portion of its issued capital, and it is anticipated that not less than 8s. per 5s. share will be distributed in respect of the operations for the current twelve months. But at the moment the market does not seem to be influenced by questions of intrinsic values. A well-known Stock Exchange authority interviewed by us on the subject of the market outlook remarked during the week: "The position to-day is a very curious one, in view of the fact that nobody thoroughly understands the various rates of exchange that are to-day influencing all markets. At the same time a factor which affects us very largely is the gold premium. This latter is again influenced by fluctuations in exchanges, and it is therefore almost impossible to forecast the trend. The position is such that it does not seem to matter what our mines are actually doing, when you are faced with the fact that shares can be bought in London at a certain price and sold here at the same price, and the operator, by cabling the money at this end, can make a profit on the transaction. One is inclined to think that such a state of affairs cannot last. The matter was being discussed with a prominent engineer a few days ago, when he stated that Modders and Modder Deeps were in a better position than they had ever been before, but it was necessary to point out to him that, due to the conditions obtaining to-day, good information regarding a mine really does not affect the market price. However, apart from all this, one cannot help feeling that our good gold stocks, such as the three Modders, Government Areas and Van Ryn Deeps, are very attractive from an investment point of view, if the investor is willing to hold and not worry about market fluctuations. Even supposing that the worst comes to the worst, and many of the poorer mines are compelled to close down, these good stocks must surely continue to pay good dividends for a long period. It will be gathered from the foregoing remarks that it is most difficult to advise whether to buy or sell. In fact, it seems that the lack of knowledge is not only a South African complaint. From various views received from certain prominent London firms, it would appear that opinions are very much divided with regard to the future of our market, and particularly as to the gold premium. In view of this, it would seem that both here and in London one has to take what facts one can obtain, and decide entirely on one's own what is best to be done." Modder Easts are a firm feature around 25s. 6d. and both options are correspondingly stronger. Transvaal Silver and Base Metals are steady at 53s. 6d. In Diamond stocks the minor sensation of the week has been afforded by Postmas which have spurted up to 16s. 6d., subsequently reacting to 15s. Roberts Victors have been slightly better up to 17s. Crowns stick around 12s., and Frank Smiths at 14s. 6d. African Oils came into momentary popularity at about 12s., but have since been unquoted.

	16th. Fri.,	17th. Sat.,	19th. Mon.,	20th. Tues.	21st. Wed.,	22nd. Thurs.,
Anglo-Americans	46 0*	38 0*	39 6†	36 0*	35 0*	37 6
Apex Mines	6 3*	6 6	6 6*	6 6*	6 9*	6 9*
Bantjes Cons.	2 10*	3 0*	3 1*	3 6†	3 6†	—
Brakpan Mines	58 0*	57 6*	—	—	—	—
Brick & Potteries	4 6*	4 6*	4 6*	4 6*	4 6*	4 6*
British South Africa	18 0†	—	—	—	—	—
Bushveld Tins	1 6*	—	1 3*	1 3	1 3*	1 4
Cassel Coals	—	30 0*	30 0*	30 0*	—	32 6*
Cinderella Cons.	6 6	6 6†	—	—	6 6†	—
City & Suburbans	6 6*	6 9*	6 9	7 0	7 0	7 0*
City Deeps	54 0*	53 0*	54 0*	56 3†	54 0†	53 0
Clydesdale Collieries	22 6*	23 0*	23 0*	22 6*	22 6*	23 0*
Cons. Investment	27 6†	26 0†	—	26 6	—	25 0A
Cons. Langlaagtes	19 6*	19 0*	19 0*	19 0*	19 0*	—
Cons. Main Reefs	11 6*	11 6†	10 6*	10 6	10 6*	10 6*
Cons. Mines Selection	27 6*	30 0†	28 0†	—	30 0†	28 0*
Coronation Freeholds	1 2*	1 6*	1 6*	1 6	1 6*	—
Coronation Syndicates	15 0†	15 0†	15 0†	14 0†	14 0†	14 0†
Crown Diamonds	11 6	11 9	11 6*	11 6	11 6*	12 0
Crown Mines	57 0*	57 6*	57 6*	57 6*	57 6*	58 0*
Do. Debentures	—	—	£95*	£95*	—	£96*
Daggafonteins	17 0A	15 0	15 0	15 3	15 0*	15 0*
Do. Options (4 years)	0 9*	0 10*	0 6*	1 0	0 9†	0 9†
East Rand Coals	2 3*	2 3	2 3	2 6†	2 3*	2 3*
East Rand Deeps	0 10*	0 10*	0 10*	—	1 0†	—
East Rand Props.	8 10½	8 3	8 0	7 6*	7 7*	8 0*
Do. Debentures	—	£72*	£72*	£72*	—	£72*
Eastern Gold Mines	1 0*	1 0*	1 0*	1 0*	1 0*	—
Frank Smith Diamonds	15 6	15 0	14 3*	14 6	14 3	14 4*
Geduld Props.	46 0	45 0*	46 0†	44 0*	—	44 6*
Glencoe Collieries	4 6*	—	5 0*	—	4 6*	5 0*
Glynn's Lydenburgs	15 6†	15 6†	16 0†	16 0†	16 0†	16 0†
Government Areas	89 0	89 0	88 6	87 9	87 6*	87 3
Hume Pipes	25 0	25 6*	26 0	25 6*	27 0	26 6
Jhb. Board of Executors	36 0*	36 0*	36 0*	36 0*	—	36 0*
Jupiters	4 0*	4 9†	4 0*	4 0*	4 0*	4 3*
Kaalfonteins	0 7*	0 7*	0 7	0 7	0 6*	0 6
Klerksdorp Props.	2 3*	2 3*	2 4*	2 0*	2 6	2 0A
Knight Centrals	4 6	4 4*	4 0*	4 1*	4 3	4 3*
Knights Deep	—	7 0*	—	—	—	—
Lace Props.	12 0	12 3*	12 0*	12 0*	11 9*	11 6*
Leeuwpoort Tins	25 3	24 6*	24 0*	24 0*	24 3	24 3
Luipaardsvlei Estates	—	4 0†	—	4 6†	—	—
Meyer & Charltons	92 6	90 0*	92 6*	92 6*	92 6*	92 6*
Middelvlei Estates	—	1 8*	1 8*	—	1 6*	—
Modder B.	135 0*	134 0*	135 0*	132 6*	132 6*	133 9
Modder Deeps	47 9	47 6	46 6	45 9*	46 0	46 0*
Modder Easts	25 0	24 9*	24 9	24 9	24 9	25 6*
Do. Options (3 years)	4 5	4 3*	4 0	4 3†	4 0	4 2*
Do. Options (4 years)	9 9	9 3*	9 4	9 3	9 0	9 0
Natal Navigation Colls.	24 6*	—	—	—	29 0*	24 0*
National Banks	265 0A	265 0†	260 0*	—	—	260 0*
New Boksburgs	1 0*	—	2 0†	1 9†	—	—
New Eland Diamonds	73 0*	75 0*	75 0*	74 6*	—	73 0*
New Era Cons.	9 0*	9 3*	9 3*	9 6*	9 0*	9 0*
New Geduld Deeps	2 0*	2 0*	—	—	2 0*	—
New Kleinfonteins	9 9*	9 9	9 6*	9 6*	9 9	10 0
New Modders	71 6	70 0*	69 6	68 6	69 6	70 6
New Unifieds	—	—	—	6 6†	5 0*	6 0
Nigels	—	—	10 0†	9 0†	—	—
Premier Preferreds	—	—	—	130 0*	—	125 0*
Pretoria Cements	94 9	94 0*	93 6*	93 6	93 6	92 9*
Rand Nucleus	1 4*	1 9†	1 6*	—	—	1 6*
Rand Selections	80 0*	—	—	—	82 6†	—
Randfontein Deeps	6 0*	6 6†	—	6 0	6 9†	6 9
Randfontein Estates	20 0*	19 3*	—	18 3*	18 6*	19 0
Roberts Victors	14 9*	15 0*	15 0	15 3*	16 6	16 6*
Rooibergs	9 9	9 9	9 6*	9 6	9 9	9 9*
Roodepoort Uniteds	5 0†	4 0†	—	—	—	—
Rouxville Diamonds	22 0	22 0	21 6*	22 0	21 6*	21 3
Ryan Nigels	3 6*	3 6*	—	3 3*	3 6*	3 3*
Shebas	2 6*	—	3 0†	—	3 0†	3 0†
Simmer Deeps	2 6†	1 3*	—	2 6†	2 6†	2 6†
S.A. Alkalis	20 6	21 0	—	21 0*	21 3*	22 0
S.A. Lands	5 3	5 3*	5 0*	5 0*	—	5 0*
S.A. Townships	13 0	13 0*	13 0	13 0*	13 3	13 0
Southern Van Ryns	9 3	9 0	8 6*	8 6*	8 3	8 3*
Springs Mines	47 9	47 6	46 6	46 3	46 3*	46 6*
Sub Nigels	15 0	14 6*	20 0†	15 0	14 6*	15 0*
Transvaal G.M. Estates	13 3	12 0*	—	12 6	—	12 0*
Transvaal Silvers	50 6	52 0	51 6*	51 0*	51 6*	51 6
Do. Options	33 0	33 6	33 6	—	33 6†	32 0A
Van Dyks	3 3*	—	3 3*	—	3 9†	3 9†
Van Ryn Deeps	88 6	87 6*	87 6*	85 0*	85 6	85 0
Victory Monarchs	50 0	—	—	—	—	50 0*
Village Deeps	14 0†	—	13 0†	13 0†	13 3†	13 0†
Village Main Reefs	7 6†	7 6†	7 6†	7 6†	7 6†	—
West Springs	18 6	18 6	18 0*	18 0	17 0	17 9
Do. Options	3 9	3 9*	3 9	3 6*	3 6*	4 0
Western Rand Estates	5 9	5 3*	5 9*	5 9*	5 9	5 6
Wit. Deeps	9 3	—	—	—	8 3*	8 3*
Wolhuters	4 6*	4 7*	4 6*	4 9*	4 10*	—
Zaaiplaats Tins	9 5	9 6	9 5	9 4*	9 4	9 3
Union 5 per cent.	£102⅛*	£102⅛	£102⅛	£102¼	£102*	£102⅛

*Buyers. †Sellers. AOdd lots. BEx London.

THE OUTLOOK FOR TRANSVAAL SILVER AND BASE METALS.

Acting Chairman's Informative Review of the Excellent Prospects—Question of Reduction Plant—Rich Ore Shipped and in Sight.

THE statutory meeting of the Transvaal Silver and Base Metals, Ltd., was held on Friday, the 16th day of April, and in the absence of the chairman, Sir George Albu, Bart., in Europe, the chair was taken by the acting chairman, Mr. Arthur French, who, in addressing the members present, said, *inter alia*, after reviewing the various holdings of the company:

Since the issue of the prospectus, options have been acouired on a portion of the farm Hekpoort No. 430 and a portion of the farm Witpoort No. 408. These areas will be prospected in the coming dry season. The first has been secured as being well situated on the mineral belt. On the second there are numerous old workings of the late Witpoortje Syndicate, and ore rich in lead and silver can be picked up on the old dumps from these. The various workings will shortly be cleared to allow of a full investigation. The mining timber in a plantation on the farm Rondvlei has also been acquired. As this plantation is situated at little more than a mile from our mines on Dwarsfontein, it will be a source of great economy in the near future.

WORKING POLICY.

Naturally, in the instance of such an enormus area as above indicated, it is quite impossible for us to tackle the proposition on a wholesale scale, as such a policy would obviously absorb the whole of the working capital in a few weeks, and leave us with very little to show for the expenditure. Our policy has been, therefore, to carry on extended prospecting operations throughout the holdings, and to confine more detailed work to one section at a time, With this idea in view, work at present has been concentrated on what I may call the new strike on Dwarsfontein, which was briefly referred to in the prospectus in the statement that "very encouraging results had already been obtained on a previously untouched stretch on one of the Dwarsfontein holdings." At this point, the upper portion of the Lode was obscured by black bog, but, by trenching, the strike has now been proved for a distance of 2,00 feet to the south-east. To the north-west, and in the direction of the nearest workings of the old Transvaal Silver Mines, the bog becomes very deep, and the lateral extension at this point must be followed by underground development. This lode is not directly in the line of strike of the old Transvaal Silver Mines, but it may be that future working will show it to be a continuation of the same lode. To prove the extension of the lode in depth, two winzes, at 500 feet apart, have been sunk at a depth of approximately 30 feet, and have exposed ore of very high value, in fact, from these winzes alone, argentiferous galena to a value of some £1,200 has been recovered and shipped to England. So encouraging were the values in the winzes that it was decided to carry out extended development operations on the lode in this area of the farm, and, with this idea in view, a new three-compartment vertical shaft has been located to the dip of the lode, and, approximately, midway between the two winzes. This shaft was sunk to a depth of, approximately, 30 feet by handling the water with hand pumps, at which point the incoming water was more than these small pumps could deal with. Iin the meantime, however, the erection of a headgear, hoist, hoilers and air compressor plant had been put in hand, and, at the present time, the bulk of this work has been completed, and shaft sinking has just been resumed. The shaft will now be sunk as rapidly as possible to a depth of 130 feet, at which point a crosscut will be driven to the lode, connection being established with the winzes in due course.

TRIAL SHIPMENTS OF ORE.

While this work is being carried out, it is obvions that a certain quantity of ore will be obtained, and, in order that this may be realised, arrangements have been made with the freehold owner for trial shipments of the ore. The first of these shipments, as already mentioned, was obtained by hand picking the ore from the winzes, and should have now reached England. It consisted of 21 long tons, averaging 74·6% lead and 103·6 ozs. of bar silver per ton. Another parcel of 25 tons of similar value is nearly ready for shipment. Owing to the varying values of metals, no definite intrinsic value can be assigned, but, at current quotations, the shipments are worth over £60 per ton. The seconds from hand-picking are being stacked, awaiting treatment at a later date. In the near future, operations will be extended to the old Transvaal Silver Mines workings. The plant for unwatering the workings is now arriving on the ground and an early start should be possible on renewing the shaft timber in the upper portion of the shaft, from which it has been removed. As soon as this work is well under way, our attention will be directed to exploitation of the Brakfontein mine, and. still later, work will be undertaken in the White Swan mine, Boschpoort mine, and tbe East Lode of the Transvaal Silver Mines. In the meantime, a systematic campaign of investigation and surface prospecting of the various holdings of the Company is being carried out. This work was already in progress prior to flotation, and since then numerous lode lines have been traced and their strike, extent and dip have been proved by shallow surface prospecting. Generally speaking, the lodes show little or no lead at surface, which is only to be expected, since in most cases the mineral contents will be leached out down to the water zone. Exploration by means of winzes would be expensive, owing to the necessity of providing hoisting and pumping plant, and it is proposed, therefore, to test the lodes below water level by means of diamond drilling, which will be commenced with in the next week or two. The lodes which have been specially noted for testing in this manner are as follow:—

LODES DESCRIBED.

(a) The La Grange Lode.—This lode shows a strong outcrop in La Grange's portion of Dwarsfontein, and reappears strongly in Snyman's portion on the opposite side of the vlei. It is traceable for upwards 3,500 feet in all. It is a powerful body up to 8 feet or more in width, the surface gozzan still assaying small amounts of silver. A strong parallel lode 70 feet N.E. of this lode has just been located, and is being traced in its lateral extensions.

SALISBURY, RHODESIA.
WIGG & JENKINS,
MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.
Gold and Base Metal Properties
FOR SALE AND WANTED.
Correspondence invited.
P.O. Box 118. Telegrams: "WIGG."

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE
Used for years by the majority of Mines all over South Africa.
Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

(b) The Spies Lode.—This lode has been located in Spies' portion of Dwarsfontein, and has now been proved laterally for upwards of 2 000 feet. Occasional remnants of lead ore have been found in the gozzan.

(c) The East Lode of the old Transvaal Silver Mines is traceable for 2,500 feet into our Brakfontein holdings, and old prospect dumps show traces of mineral. The priniepal interest of the Brakfontein holding, however, is—

(d) The Brakfontein Lode, which has been proved as a strong body for upwards of 4,000 feet beyond the limits of the drives from the old Brakfontein shaft. At surface it carries little or no mineral, but at 120 feet down in the old mine ,a highly mineralised lode was driven on below the water line.

(e) Another lode of considerable interest is the White Swan Lode, which can be followed for 8,000 feet in our holding on Oudezwaanskraal. In places it is of great width. Of this lode and its mineral value little can be said pending recovery of the old mine and workings of 30 years ago, though the extent of the dumps indicates fully 2,00 feet of development work.

Apart from the work already referred to, certain buildings have been erected on the property, to serve our immediate requirements. The headquarters of the mine have been located on the freehold covering the West Lode of the old Transvall Silver Mines. Here a building has been erected for the temporary purpose of office and staff quarters, together with a store, the first portion of the native compound, and a block of single quarters, with dining room, etc. The buildings are mainly built of bricks made on the property.

REDUCTION PLANT.

In view of the rich ore proved and being mined on Dwarsfontein, and of the fact that one of the dumps of the Transvaal Silver Mines contains high grade ore, the question of the installation of a reduction plant is receiving careful consideration. Naturally, the erection of the large reduction plant must await the investigation or research work to be carried out on the trials parcels of ore now being shipped to England, and in this connection I may say that your chairman, Sir George Albu, who is at present in London, is already in touch with one of the leading experts on the other side, who probably will take charge of the treatment of he experimental shipments. Pending a definite decision as to the final plant, however, and in view of the high values of lead and silver now ruling, the question of the immediate installation of a small trial plant for concentration of the ore now being produced from development, and shortly to be obtained from stoping, is under consideration. Such a plant will not give the percentage of extraction which will be obtained from the larger unit to be erected later, but, at the same time, it will afford valuable information regarding the best method of treating the ore, and will enable us to come to a producing stage on a small scale in the very near future.

AN EXPLANATION.

Now, Gentlemen, most of the foregoing remarks are necessarily of a somewhat technical nature, and may convey a more or less misty understanding to the minds of some shareholders. For instance, a lode traceable for a few thousand feet may seem a small occurrence compared with what we are accustomed to in connection with the gold mines of the Witwatersrand. In the first place, however, I would ask you to bear in mind that the silver lead ore we are dealing with has an average value of anything from £10 to £60 per ton, instead of twenty to thirty shillings per ton value yielded by most of the gold mines. Morever, the ore contents of a proposition represented by only a short distance on the strike are quite considerable. For example, assuming that the new strike on Dwarsfontein does not extend a single foot beyond the 2,000 feet already traced on the outcrop, that the mineralized portion of the lode averages only twelve inches in width, and that the lode peters out altogther at a depth of 100 feet, this would reperesent a total of approximately 40,000 tons of ore and if we take an average recovery of only £20 per ton (as compared with the much greater actual value which we are obtaining from the winzes), the gross value of the ore in this comparatively small block of ground would be in the neighbourhood of £800,000; and this, of course, is only one of the many lodes which, as you will have already gathered, have been proved to exist on the holding of the Company. Speaking from a purely personal aspect, I have to confess that when I have attempted to gauge the possibilities of this mining proposition of ours, I am confronted with figures of such enormous magnitude that I have to take a big hold of myslf to prevent being carried away by what may prove to be undue optimism. Like the famous costermonger in *Punch*, I am at once thinking in millions. That is why I cannot seriously think of giving you any estimates or predictions at the present time. What we must do is to take the sane view of the position as it exists to-day, to open up our most promising holdings as expeditiously as we can, and to arive at the stage of production on a larger scale as soon as possible.

The chairman then invited any member present to ask any question or discuss any matter relative to the formation of the Company or arising out of the Report, but as no questions were put or discussion raised, the meeting terminated.

Shale Oil.

We take the following from an American exchange:

On several occasions the Press has called attention to the possibilities of our western deposits of shale. The destructive distillation of oil shale became an industry in Scotland in the early 60's, where it has remained firmly established, although at times saved only by the sale of such by-products as ammonium sulphate. There are no commercial shale operations in this country at the present time although active investigations are in progress and some semi-commercial-scale tests are being made, particularly with reference to the deposits of Coloroda, Utah and Nevada. These States have large amounts of easily accessible deposits of shale rich in oil and the geographic and transportation conditions are such as to favour oil production in the States named.

It is generally recognised that we must soon obtain our hydrocarbon oils from other sources than the oil wells of our country, and the shales have assumed economic importance. Oil does not exist in shale as such, but is present in the form of complex organic compounds called "kerogen." This material, upon heating in suitable retorts where air is excluded, yields hydrocarbon oil and permanent gases, while the nitrogenous material of the shale breaks down into ammonia and organic bodies. The operation of shale retorts is fairly well standardised so that what can be done becomes largely a question of economics. The temperatures reach a bright red heat at the base of the retorts and as the shale must remain in the retort for a long while, a large investment in equipment is required to handle a daily tonnage great enough to make the operation pay. The Scottish shales average about 23 gallons of oil per ton, which is lower than the values obtained with western shales, but their yield of ammonium sulphate is much higher and averages between 60 and 70 pounds per ton of shale treated. This liberates free hydrogen, which combines with the nitrogen, forming ammonia. In the case of our western shales it may therefore prove advantageous to operate the retorts solely with reference to the oil recovery and fuel economy.

Theoretically the products now obtained from crude petroleum and coal tar may also be recovered from shale oil operations, but it will doubtless be some time before the technology of shale treatment has been brought to the point where it will be profitable to make so wide a variety of products as is now separated from petroleum. After all, the production of oil from shale is a manufacturing proposition requiring large capital and abundant engineering and technical skill rather than the kind of manufacturing operation involving a number of intricate processes and the corresponding highly organised research staff.

SOUTH AFRICAN BLACKWOOD.

Large stocks of South African Blackwood
from George District, C.P., now in stock.
Also well-seasoned wood suitable for Furniture, in
lengths of 4-inch thickness.

Samples and Prices from
R. B. GREER & Co., Ltd.,
MAXWELL BUILDINGS, 20 HARRISON ST.
P.O. Box 2913. Telephone 286. Telegrams: "AGREE."
JOHANNESBURG.
Stores: MARKET and BEREA STREETS. Telephone 4295.

BATTERY WANTED.

OFFERS are invited for the supply of a
Small Crushing Plant (5 or 10 stamp) and
Cyanide Plant, complete. with full power.
Full pa ticulars to the
SECRETARY,
Armistice Siding, Ltd.,
P.O. Box 3308,
Johannesburg.

PROFESSIONAL DIRECTORY.

LITTLEJOHN & WHITBY,

ASSAYERS TO THE AFRICAN BANKING CORPORATION.

CONSULTING ANALYTICAL CHEMISTS AND METALLURGISTS.

P.O. Box 849. 'Phone 1633.

Office and Laboratories:
24, SIMMONDS STREET, JOHANNESBURG.

Assays and analyses of all Minerals, Drugs, Foods, Water, Milk, Oils, etc., undertaken.

Experiments conducted. Reports made as to the treatment of any class of Ore.

PATENTS AND TRADE MARKS.

D. M. KISCH & CO.

(C. H. M. KISCH—A. L. SPOOR).

ESTABLISHED 1874.

Members Chartered Inst. of Patent Agents, London.

COLONIAL AND FOREIGN PATENT AGENTS.

The Firm undertake the Patenting of Inventions and the Registration of Trade Marks throughout the world; the Preparation, Revision or Amendment of Specifications and Drawings; reporting on Validity and Infringements; obtaining copies of Specifications and Drawings of Patents granted; Searches through the Patent Office Records; the conduct of Oppositions, and all other matters relating to Patents and Trade Marks.

No. 16 to 19a, NATIONAL MUTUAL BUILDING,
Corner of Rissik and Market Streets.
P.O. Box 668. Telephone No 774.

THE TECHNICAL PUBLICITY AGENCY.

Specialists in Technical Advertising Service.

Advertising Advisers, Contractors and Consultants.
Pioneers of Technical Publicity in South Africa.
Specialized, Concentrated, Wasteless, Advertising Service.
Complete Advertising Campaigns Planned and Handled.
"Copy" Prepared. Best Media Chosen. Lowest Prices and Best Positions Secured.

Enquiries invited.

Phone 913. Box 3723.
177, STOCK EXCHANGE, JOHANNESBURG.

E. M. WESTON,

Assoc. S.M.B., etc.,

Certificated Mgr. Tasmania and Transvaal.

P.T. Consulting Engineer (Metals) to Transvaal and Delagoa Bay Investment Co., Ltd. Consulting Engineer, N'Kana Copper Mines, Reliance Gold Mine, Tambootje Tins, Ltd., etc.

Mr. Weston has managed mines of gold, tin, copper, silver-lead, wolfram and bismuth.

Subject to engagement, Mr. Weston is prepared to report on mineral properties and to prepare plans, etc., for their equipment.

146-150, Exploration Buildings, and Box 3308,
Phone 1796. JOHANNESBURG.

Box 2127 Est. 1892. Phone 217

GEO. McINNES,

B.Sc., M.A.M.E.

Electrical Supplies.
Marshall Square,
Johannesburg.

J. E. MILLS DAVIES,

CONSULTING MINING ENGINEER,

180, Stock Exchange Buildings,
P.O. Box 4573. Johannesburg. Telephone 913.

BARFORD & Co., Ltd.

(Late Bull & Oehmen, Ltd.)

SCIENTIFIC AND MATHEMATICAL INSTRUMENT DEPARTMENT.

Large Stocks of Theodolites, Levels, Planimeters and Pantographs (Coradi), Steel and Metallic Tapes, also general Surveying Appliances.

REPAIRS of Scientific Instruments A SPECIALITY.

Phone 1221
59, RISSIK ST., JOHANNESBURG.
Box 4040

J. GOULDIE, C. & M.E., M.I.M.E.,

CONSULTING ENGINEER.

Late Manager to the De Beers and other Diamond Mines. 30 years practical experience in Diamond, Gold, Coal and Metalliferous Mining in South Africa, and holder of Mine Manager's Certificate (First Class).

Mines and Mineral Propositions Inspected and Reported Upon.

Office: 62, Standard Bank Chambers, Commissioner St.,
JOHANNESBURG.
Phone 2225. Telegraphic Address: "Edloug, Johannesburg."
Code: Imperial Combination and A.B.C. (5th Edition).
Reference: The National Bank of South Africa, Limited, here and in London.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

West Rand Reefs: A Prospector's Growl.

To the Editor of the SOUTH AFRICAN MINING & ENGINEERING JOURNAL.

Sir,—We are told in the *Rand Daily Mail* of the 13th inst., "There is no need to be alarmed." "We can still sit with folded arms." "All is right with the Rand." And this in face of the fact that thirteen mines worked last month at a loss. Nero fiddled when Rome was burning: we are exhorted to sit with folded arms whilst our greatest industry is diminishing.

Is there no organisation devoted to further the interests of the mining industry? You, sir, may reply "that is the business of the Chamber of Mines," to which I retort, "No, sir, the Chamber of Mines may protect its associated members, but it never makes any effort to further the interests of mining." That is the work of the prospector, and on his efforts the expansion of the mining industry very largely depends. From my personal experience the Big Houses, who are the main stay of the Chamber of Mines, never offer any real encouragement to a prospector. When a prospector makes what seems to him to be an important discovery, he finds nothing but difficulties confronting him. He rarely finds a sympathetic ear in any one of the Big Houses that may be directly concerned, and if he should by any chance get one to listen to him, he is switched off to a consulting engineer. That august individual at once becomes a miniature iceberg and looks down upon the prospector as an interfering interloper. That is my experience. The many rebuffs I have met with have not, however, damped my enthusiasm. For thirty years I have given time and attention to a study of the Rand reefs. I have retained a complete record of the happenings of mining on the Rand during that long period. I have also by me numerous copies of speeches made by leading mining magnates and their famous engineers, who come and go according to the moods of the former when they "thumbs up" or "thumbs down."

It is all a great game this mining industry of ours, but it cannot be maintained if we are to submit with folded arms and witness the closing down of mine after mine. Is no effort to be made on the part of the Chamber of Mines to bring into action other reefs or other mines to take the places of those reaching the end of their tether? If not, why not? Mr. Elkan, in his able speech, when he addressed the Chamber of Mines in February, 1913, summarised the position of the mines and held out hopefully as to the future. What is the position to-day? The reverse of the picture so nicely drawn by Mr. Elkan. Take the evidence of Mr. Fred Helman, given before the commission on the position of the E.R.P.M. At that time the stock of this company was looked upon as the Consols of South Africa. The shares touched £12 13s. They subsequently fell and fell until outcasted at 4s. To-day they fluctuate between 7s. and 10s. The two adjoining properties are practically in the same moribund state, viz., The Cinderella Deep and the Hercules. Why? Simply because there is a reef carrying 9·2 dwts of gold per ton running through these properties untouched. Mr. Elkan was addressing the pessimists when he made these statements. Again, the good old May Consolidated was shut down, but their section was never proved outside the confines of their property. These doings, or rather misdoings, prove, to my mind, there is something wrong with Rand mining.

Many American engineers were all wrong in this country. They were not always doing the correct thing even in their own country. Many mining ventures in America have been turned down by American engineers. What about the Jumbo at Goldfield Camp? It was thrown up on advice from the consulting engineer. Other interests with a new engineer took it up and to-day the Jumbo is accredited with having paid approximately ten million dollars profit to its shareholders. The Florence, Red Top, Mohawk and other mines were originally condemned by the wise engineers o ftheir day. Notwithstanding the gloom that settled over Goldfield Camp, in consequence of the drawbacks, we read that it is to-day a most important centre in the production of the yellow metal in the United States. Don't forget also that Mr. John Hays Hammond, the most important, if not the most eminent, engineer that ever worked on the Rand, and whose name was one to conjure with in the stirring days that preceeded the Boer War, turned down—listen, sir, because I have it on good authority—turned down the Nipissing Mine in Ontario. Nay, more, he was only one of the many engineers who could see no chance of Cobalt ever amounting to anything as a silver-producing camp. Notwithstanding, Cobalt to-day is known to the world over with such names as Nipissing, La Rose, Hudson Bay and Coniagas as producers of millions for their fortunate owners. I could furnish many more instances of mining engineers disregarding the solid advice of the practical mining man, and where, had the latter only got half a chance, he would have brought several propositions that have "gone in" to a dividend-paying stage.

The great fault I have with many mining engineers is that they expect developed mines when they inspect a mining proposition. They forget that mines are not found. They have to be made, and that is where a practical mining man comes in. He feels that the only way to find whether or not a prospect has the makings of a mine is to get down in the ground and find out. It is certain, were it not for this spirit, many of the mines in Rhodesia and even the Rand, would not be enriching the world with their millions, and helping the erstwhile warring nations to-day, out of their slough of despond.

Can you imagine the Randfontein Estates being bought by the great Barnato House without even their Consulting Engineers being allowed to sample up the mines? It is hardly creditable, but nevertheless a fact. Were they content to accept the mine as they would a pig in a poke? Or had they something up their sleeve and knew more than the previous owners? I wonder. Time will tell. I entered into negotiations with the past proprietors of the Randfontein Estates with a view to putting them on to what, in my opinion, after ten years' study of the jumbled strata in that Company's ground, was the Main Reef series, but they all ended in smoke. I have since become confirmed in the views I then entertained, that too much playing of bowls and lawn tennis does not conduce to the paying of dividends. I was prepared to stake all I had that I could disclose the presence of a good and payable reef and trace it running through the Randfontein Estates property. The two deep shafts under construction are a long way off it.

At the winding up of the liquidation of the York Mine, Mr. Julius Jeppe declared that the mine had returned to shareholders 100 per cent. of the capital in dividends. Yet there are in that mine thousands of tons of undeveloped payable ore. For proof I am prepared to show Sir George Albu, or his deputy, Mr. French, the self same reefs underlying the Luipaardsvlei Estates. I was ready to point out these reefs to Mr. Cohen and Mr. Saner, some years ago, but as I was only a practical miner and they were consulting experts, I was turned down. Sir Abe Bailey also ignored a letter from me couched in similar terms. Perhaps he knew as much—if not more—than I did, else why his offer—which was refused—of ten millions sterling to Sir J. B. Robinson for the Randfontein Estates? Sir Abe is my authority for this offer. He made it in a speech in my hearing some years ago at the Rink, Krugersdorp.

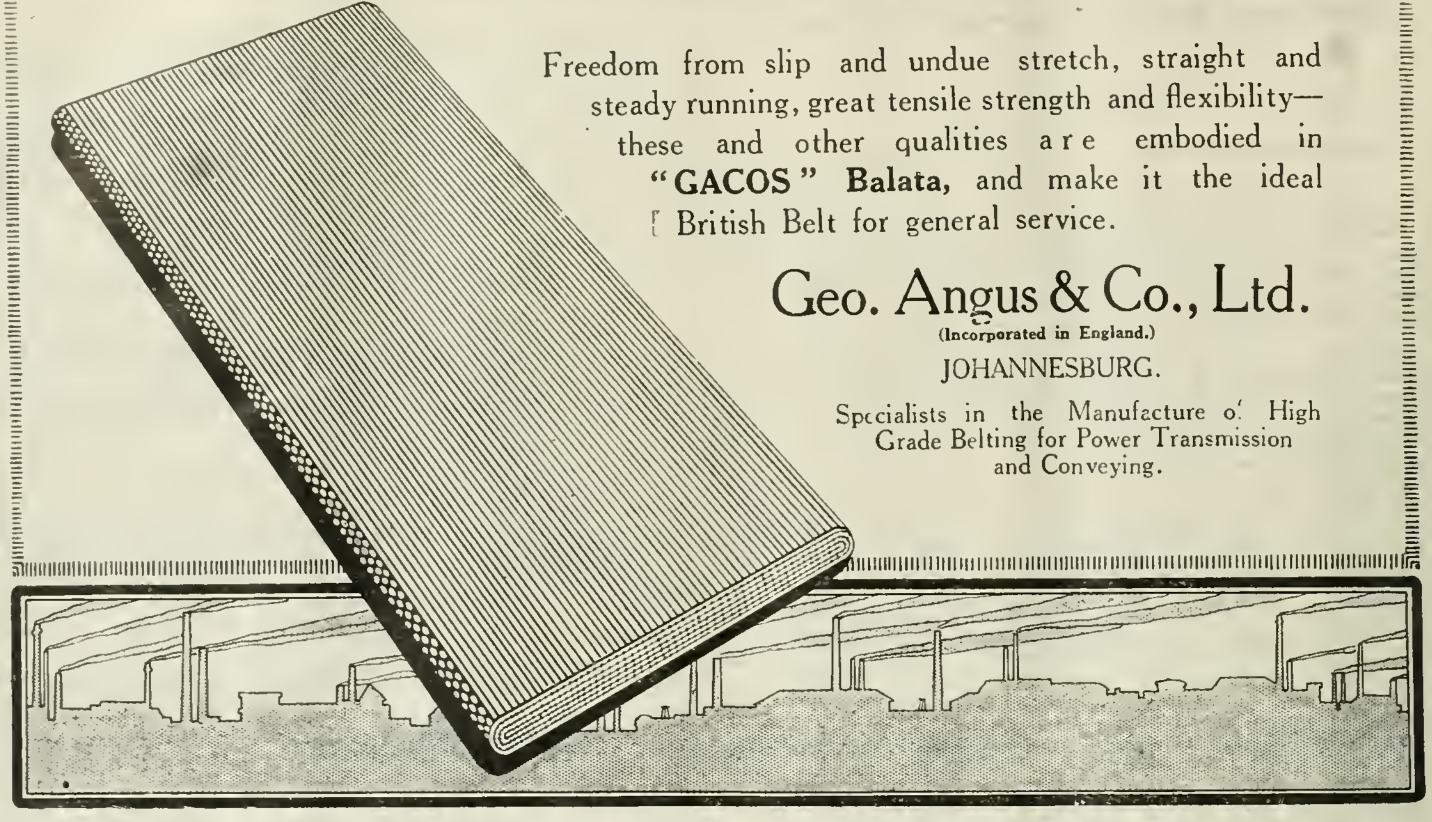
Does Mr. E. Kumst, consulting engineer, call to remembrance that in 1911, on Claim 1303, two boreholes were put down north of the Champ de Or? One bore reached about 900 feet, the other 1,400 feet. Two series of reefs were pierced. The best assay didn't reach 1 dwt. Let me advise those who have just recently pegged off claims around and about Krugersdorp to take care. Do not be misled by any professed knowledge such as Mr. Kumst gave in a recent letter of his to *The Star*. It was proven long ago that the town of Krugersdorp and West Krugersdorp did stand on Botha Reef. Its footwall is at the Transvaal Hotel and Pretorius Street. In my opinion Mr. Scott Alexander is the only man who seems to have a true knowledge of this series. The day will come when the West Rand Unified and the Penwith Syndicate will be rightly allocated their position in the sequence of reefs in their ground, and that the assumption, which ended in disaster to the shareholders, will yet be deemed premature and unwarranted.

I have no hesitation in saying the Randfontein management are not developing their vast resources to the best advantage. They are following a will-o'-the-wisp and leaving untouched the true and permanent gold carriers. These reefs will be, in years to come, the salvation of the Randfontein Company.—Yours, etc.,

JOE THOMPSON.

The Lonely Mine.

The following are particulars of output of gold, etc., from the Lonely Mine for the month of March, 1920: Mill ran 681 hours; crushed 4,580 tons; fine gold recovered, 2,211·682 ozs., value £9,319 8s. 6d.; slimes treated, 4,580 tons; fine gold recovered, 3,661·018 ozs., value £15,409 15s. 5d.; total fine gold, 5,875·700; total value, £24,729 3s. 11d.; profit, £12,185 4s. 3d.



"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in "GACOS" Balata, and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

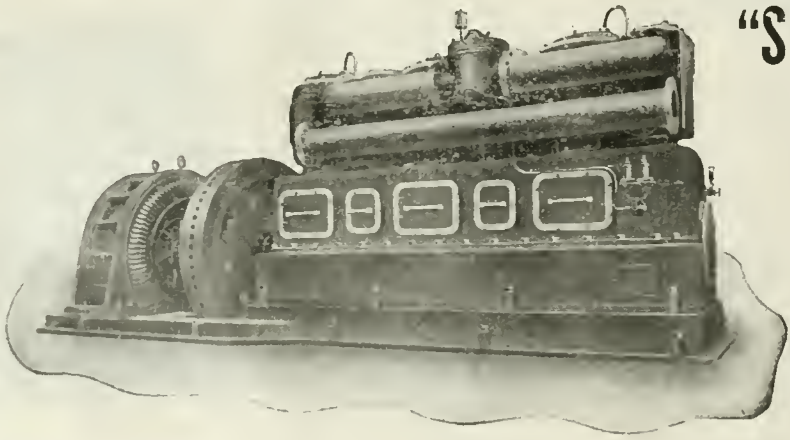
Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

DUNSWART IRON & STEEL WORKS, LIMITED.

MANUFACTURERS OF
FLAT, ROUND & SQUARE BARS (IRON AND MILD STEEL),
ANGLES, etc.

Johannesburg Offices:
Southern Life Buildings,
Main Street.

P.O. Box 3921.
Telephone 1924.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessability, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Grffin Engineering Co. Ltd.
94 MAIN STREET, JOHANNESBURG.

ENGINEERING SECTION.

WIRE ROPES AND SAFETY.

In the course of its investigations on safety in mining, the Fuels and Mechanical Equipment Division of the U.S. Bureau of Mines has collected much information bearing on the use of wire ropes, and has now published a Technical Paper (No. 237) by Messrs. R. H. Kudlich and O. P. Hood, outlining approved practice in the United States to ensure safety. The following is an abstract of the Paper.

At the outset the advice is given never to exceed the working load of the rope as given in the manufacturer's table. The rope must have a factor of safety to allow for wear, corrosion, and severe strains due to starting, etc. The following values for the factor of safety are recommended by the Bureau for hoisting ropes for various depths of shafts: For a length of rope of 500 feet or less a minimum factor of safety of eight for the new rope, and a minimum of 6·4, when the rope must be discarded. The corresponding values for a rope 500 to 1,000 feet long are 7 and 5·8 respectively; for a rope 1,000 to 2,000 feet long 6 and 5: for one 2,000 to 3,000 feet long 5 and 4·3; and for one of 3,000 feet and over, 4 when new, and 3·6 when old.

The material and construction of the rope should be adapted to the service in which it is to be used. Use soft steel rope in shallow shafts where there is strong acid water and the drums or sheaves are small. Use hard-drawn steel or plough-steel rope in deep shafts, on slopes, or on rope haulage ways. Ropes made of the softer grades of steel are more flexible and less affected by corrosion, whereas ropes made of steel of high tensile strength are not so heavy for a given strength and resist abrasion better. Where flexibility is required, a rope of a large number of small wires may be used if it is not subject to excessive external wear, whereas a rope made of a smaller number of larger wires must be used where the rope is subjected to severe external wear. The smaller the wires the greater the strength and flexibility of the rope. In vertical shafts in America the rope generally used is made of six strands of 19 wires each, laid around a hemp core. In slopes and on haulage ways where the rope is subjected to excessive wear by rubbing against the sides, floor and roof, the rope generally used is composed of six strands of seven wires each, laid around a hemp core.

Lang-lay rope should be used except where the tendency of the rope to untwist is harmful and cannot be resisted. In such places regular-lay ropes or special non-spinning ropes should be used. Lang lay rope should be used especially where external wear is severe, if it can be prevented from untwisting. Regular-lay rope does not tend to untwist when loaded, but only a small portion of each wire in a strand is subject to external wear against sheaves, drums, and to internal wear against the wires of the other strands, while Lang-lay rope tends to untwist under load, but a considerable length of each wire comes in contact with the sheaves or drum, or with the wires of another strand, and thus wear on the outside of the rope is distributed and "nicking" of the inside wires is greatly reduced.

New ropes should be long enough to permit cutting off the end and resocketing six times or more. At least two laps of rope must be on the drum when the cage, car, or skip is at the bottom of the hoist after the last cutting has been made. Ropes used on shafts or slopes for handling men must be in one piece from end to end, and not spliced. Ropes used on slopes where men are not handled and on haulage ways may be spliced, but the splice must always be made sufficiently long to allow the strands to lock well into one another.

In balanced hoisting, the length of the two ropes must be so adjusted that when one cage or skip is at the top landing the other will just rest on the bottom. Any slack rope will cause the cage to start with a jerk, especially if the engine is started rapidly, causing severe stress in the rope.

Sheaves and drums must be at least as large as the minimum size recommended by the rope maker, and should be as large as conditions permit. They must be well balanced, be as light as is compatible with strength—in order to cut down inertia in starting and stopping—and should have well-oiled bushed bearings. In good practice, the diameter of sheaves should be 66 to 100 times the diameter of the rope. Ropes made of large wires and steel of high tensile strength require larger sheaves than the minimum specified for that size of rope. Sheaves with smooth, well-chilled iron throats or with rubber-lined throats will last longer and wear the rope less than those with rough, soft iron throats.

The hoisting drum must be so set that the maximum fleet angle will not cause the rope to crush against or climb on the rope already on the drum or rub against the sides of the groove of the sheave or the grooves of a drum. The maximum fleet angle will vary with the size of rope, and with the size, and shape, and length of the drum. An angle of 1½ degrees on either side of a plane passing through the centre (hoisting) line of the shaft or the slope and the sheave, is permissable for ordinary proportions of rope and drum. The fleet angle for extra small or long drums should be calculated for each drum

The rollers or idler sheaves should be light, true, and supported on easy-running bearings to make them start and stop easily. The rope must be prevented from rubbing against the side walls, roof, or bottom at curves, by a series of small rollers or sheaves so placed as to cause only a small deflection angle at each roller. The diameter of such sheaves or rollers should be at least eighth-tenths of the deflection angle times the diameter of the rope.

Ropes must be stored in a dry place; they must not be kept in a place so hot as to destroy the hemp core.

If one broken wire is found in the rope at the fastening, the fastening should be cut off and renewed. Even if no broken wires are found, the rope must be cut off and the fastening renewed periodically, as this is the weakest part of the rope and most liable to suffer from bending and vibrating stresses. The length of time between renewing and fastening should vary with the life of the rope. The following rule gives approximately the period recommended in the Bureau's "Rules and Regulations for Metal Mines":—Time interval permissible between resocketings for ropes is equal to the expected term of service divided by six; but it should in no case exceed four months. A piece of rope equal in length to half the circumference of the sheave should be cut off when a fastening is renewed, so as to bring a new part of the rope in contact with the sheave where wear is most severe. After three years in service, even if idle, ropes may not be used unless tested for ultimate tensile strength. Unlay the piece of rope cut off and examine the inside for corrosion and wear. If they are broken, badly worn, or corroded, cut off another piece and examine it. If a considerable length of rope is in bad condition, the rope must be discarded.

At some mines it has proved advisable to turn the rope end for end after it has been in service for some time, thus equalising the wear on the two ends. If the same size rope is used in two shafts, in one of which men and material are hoisted, and in the other material only, it is well to use a new rope first in the former shaft until it shows signs of wear and then put it in the latter and wear it out there. Likewise a rope can be used first on a shaft and then worn out on a slope or haulage way.

A hoisting rope should be considered as a piece of machinery, having many wearing surfaces that must be thoroughly lubricated. The lubricant should consist of oils and greases that will penetrate the wires and the strands, and should not harden on the outside. A lubricant that hardens is cracked while bending over the sheaves and drums, so that moisture can penetrate to the centre and cause internal corrision. Tar should never be used: it forms a hard shield on the outside of the rope and does not penetrate and lubricate the inner parts. If possible, the rope should be lubricated when dry, so as to give the lubricant a better opportunity to penetrate the core and to adhere to the wires. The lubricant must be applied often enough to keep the wires well covered and to keep the hemp core from drying out. All the accumulated dirt and gummed lubricant should be cleaned from the valleys between the strands of the rope so that the fresh lubricant can penetrate.

Hoisting ropes should be inspected at least once a day, and their condition noted and recorded by a competent man, who must be held responsible for the condition of the ropes. Special attention should be paid to the rope just above the socket; at the clamps and safety clamps, if these are used; where the rope rests on the sheave, and where it leaves the drum at each end of the hoist.

No standard rules for discarding ropes have been made; they vary with different conditions and in different localities. Various rules for discarding ropes are based on (1) the stretch of the rope; (2) the number of broken wires in a given length of rope or of the entire rope; (3) the amount of wear of the wires at the crown of the strands; (4) the length of time the rope has been in service; (5) the number of trips; (6) the tonnage; or (7) the ton miles hoisted by the rope

In the absence of more definite rules for discarding ropes, according to American practice, the following quoted from "Rules and Regulations for Metal Mines," are suggested:—Safety factors must never fall below 4·5. Ropes of standard construction shall be discarded (1) when there are six broken wires in one rope lay: (2) when wires on crown are worn to 65 per cent. of their original diameter; (3) when there are more than three broken wires reduced by wear more than 30 per cent. in cross section; and (4) when marked corrosion appears. The suggestion as to the factor of safety, however, is in contradiction with the Bureau's own recommendation for ropes exceeding 2,000 feet in length.

COLLIERY NOTES AND NEWS.

Overseas Papers and our Special Coal Number—Very Favourable Comment—Tweefontein's Chairman Criticises Railway Policy—Facts and Figures concerning Natal's Coal Trade—Increasing Facilities at the Bluff.

OVERSEAS exchanges to hand during the past week or two comment most favourably on the recently published special coal number of the *S.A. Mining and Engineering Journal*. The *Financial News* says:

> Apart from one or two feeble attempts in the past to place the leading colliery companies under one hat no serious investigation of South Africa's coal resources and possibilities has been undertaken until that made last year by the SOUTH AFRICAN MINING AND ENGINEERING JOURNAL. Our contemporary does not claim that it has solved the problem, but it has undubitably gone a long way on the road. It has created tremendous interest by pointing out the nature and extent of the carboniferous deposits, and the avenues of industry indicated by them. That the coal in South Africa can be worked at a profit has been shown in our columns on several occasions when we have dealt with the position of the large colliery companies whose shares are so well and favourably known to investors on this side. Apparently our contemporary, knowing the serious position of the coal trade in Europe and America, became animated with the idea of pointing out to South Africa the dormant wealth of the country and the magnificent opportunituies that presented themselves if the resources are properly developed and markets sought for. Not until a lengthy and expensive survey had been undertaken was it possible to visualise the position, and in doing so to weigh the pros and cons. The coal areas of South Africa embrace hundreds of thousands of square miles. At first this sounds a somewhat mouth-watering proposition. Looked at in the proper light it is so, but figures have to be whittled down. Though it undertook a task of such magnitude in order to awaken the country to the opportunities and wealth in prospect, it seems to us to be scrupulously fair in its conclusions. It winnows the evidence and reduces it to cold hard fact. And it is not afraid to admit that the investigation has its disappointing side.

Our contemporary, the *African World*, says of the publication:

> The SOUTH AFRICAN MINING JOURNAL is to be congratulated on bringing together an extremely interesting and comprehensive compilation of details with regard to the coal industry of South Africa, which has been issued in the form of a special number. The publication really constitutes a concise and clearly-written work of reference on coal from the South African standpoint; for not only are full details of all the coal companies of South Africa given, but the many subsidiary articles go thoroughly into all matters of railways, harbour equipment, and ocean transport relevant to the coal industry. While those immediately interested in the industry will find the work of the greatest value for reference, it will prove nothing short of a revelation to the average citizen. The special object of the publication is to define the new position of coal in the industrial world in these early post-war days; for the emergencies and necessities of the late war have resulted in the introduction of many modifications, in order to increase both the production of the fuel and the recovery of its by-products.
>
> All these and many other aspects of the industry are fully discussed in the work, which, while possessing a strongly optimistic tone, exhibits throughout an excellent sense of perspective. In short, the special number of our contemporary contains every salient feature appertaining to the industry, and is profusely illustrated with views of all the prominent collieries and South African ports from which the coal is exported. The printing and production of the work, which extends to nearly 200 pages, is of uniform excellence, and reflects the highest credit on the enterprising publishers, the Argus Company, of Johannesburg.

The *Mining World* expresses its opinion of the production in the following terms:

> Our enterprising contemporary, the SOUTH AFRICAN MINING AND ENGINEERING JOURNAL, has published a Special Coal Number, containing a large amount of useful information relating to the coalfields of South Africa and the opportunities that are now presenting themselves of increasing the Union's export trade. The publication is opportune, because there can be no doubt that coal will be in short supply and that costs and conditions will be adverse for a long time to come. Vast as the coal supplies of Europe and North America are, the fact that they are no longer the mobile and facile attendants on commerce and industry of pre-war days is evident. The war has raised barriers between the peoples of the world; transport has become more expensive; trade (the exchange of commodities and the movement of people to and fro) has become more difficult. Moreover, the old sources of supply are being worked at present under great drawbacks and disadvantages; and naturally the outside world, that once relied on them, is now turning elsewhere.

The Financier, *Daily Telegraph*, *Newcastle Chronicle*, *Iron and Coal Trades Review*, and *Engineer*, amongst other well-known English periodicals review the publication, and further attention has been directed to it by Lord Oranmore and Browne, chairman of the Tweefontein Colliery Company, who made the following remarks in the course of his speech at the thirteenth ordinary general meeting:

> I have recently been reading an article in the special coal number of the SOUTH AFRICAN MINING AND ENGINEERING JOURNAL for December last, and I should like to call your attention to the very scathing language in which the treatment accorded to the coal trade of South Africa by the South African railways is described therein. If what is stated therin is correct, the South African railways have a very serious charge to meet, for it seems apparent that the railway system has to a great extent been run at a loss, which has only been mitigated by an increase in the coal rates imposed. I submit that when a railway system is controlled by the State it should be run for the benefit of all, and not to the detriment of one section of the community. A comparison of the profit made by the railways on tonnage carried and earnings of goods and coal is very illuminating. It is has follows: Goods—Tonnage carried increased by 25 per cent., earnings increased by 6 per cent. Coal—Tonnage carried increased by 16 per cent., earnings increased by 60 per cent. These figures speak for themselves, and need no comment from me.

* * * *

At the annual meeting of the Glencoe Collieries held in Johannesburg the other day, Mr. A. Mackie Niven predicted a better time for the company in the near future and made some interesting remarks regarding the Natal coal industry generally. He said:

> The total output of the Natal Collieries at 2.495,015 tons, shows an increase for the year of 165,545 long tons, but no less than 262,663 tons below the 1916 return. The output capacity of the developed Collieries to-day may be put on a conservative estimate at 5,000,000 tons per annum, but owing to the restriction placed on the outputs, largely owing to the failure of the railways to meet the demand for trucks, the operation of coal mining is carried on under great difficulty and economic loss.
>
> Private enterprise has far exceeded the enterprise of the Government, and, to-day, we have collieries developed ready to produce coal which is in enormous demand throughout the world, with poor railway facilities. At all seasons for many years we have constantly urged the Government to provide more trucks, more engines, and more coal handling facilities, but so far without any great success.
>
> The cry for Nationalisation of Industries is effectively answered by the position of the Coal Industry in Natal, where private enterprise has gone far ahead of a nationalised transport business. I am pleased to say, however, that the question of coal storage at the Bluff has at last been taken up, and plans have been agreed upon to provide storage bins of 10,000 tons capacity.
>
> The opening of the new line between South Coast Junction and Umlaas Road towards the end of the year, will probably increase the carrying capacity of the line 10 per cent., but on the other hand the present running plant requires heavy repairs.

The Namaqualand Copper Mines.

Mr. William Rich, managing director of the Namaqualand Copper Company, writes to the *Cape Times* with reference to the debate in Parliament in order to correct the impression that all the Namaqualand mines are worked by one company. When his company was compelled to close down a greater portion of its operations two years ago, as the result of the Home Government's decision to stop all copper imports from the Cape, the company, with a view to alleviating the situation, decided to retain a certain number of hands and continue some operations, particularly in the direction of exploration for further ore bodies. This is still being done, though there is no immediate probability of the company being able to restart. He states that there undoubtedly is great distress among the native population, which he considers to be greatly aggravated by their thriftless character and somewhat strange inclination to leave Namaqualand. He urges the starting of comparatively local relief works, particularly the opening of a railway connection with the nearest point of the line in the South-West Protectorate, with a view to obtaining Natal coke direct by rail, thus enabling the mines to re-open at once.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Indifferent but Steadier—New York Bank at Work—Timber and Building Material—Iron and Steel—The Way of Things—Shipping—Acute Shortage of Paper—British Budget—The Limited Liability Law—Private Companies.

We have been having a very indifferent time, and although things are not better yet, the various scares have toned themselves down a little. For example, the property market was a shade steadier at an auction sale on Tuesday, nothing much, but sufficient to make this statement. The world is not standing still in reference to exchange matters, to say nothing of the hopes entertained of the Finance Bill soon to be introduced by the Government as regards the reserves of gold and banking business generally. According to a letter from a responsible merchant in Capetown to his correspondent in Johannesburg, it is said that the American Bank in Capetown was in itself assisting to alter the exchange between Capetown and New York, therefore the American indent houses are becoming more liberal towards merchants in South Africa, as it is said that these indent houses are offering to do business somewhere about par or nearly so. However, all negotiations must take place through the American bank at Capetown. Inquiries have been made here to substantiate this report and so far without any news whatever being ascertained, but evidently there is a great deal in the statement, as it was only to be expected that a great American bank would naturally do something to create business. Another piece of news is from a large London fish shipping house as follows: "Re exchange. A remarkable development has occurred. We are now receiving 2½ per cent. premium on sight drafts. The amount of premium is being credited to each client on the following week's invoice, beginning this week. We hope this development will continue for a time, as it will help to reduce the c.i.f. costs." It is also added, in another part of the letter, that this will assist in enabling them to ship haddocks at prices to compete with the Cape article, which illustrates how anxious they are to retain the footing they once so strongly held in our ready-money market. Yet another piece of information is that the mines are to get half the exchange on the value of any goods imported from Britain, sold to them here, which means an extra discount of 3 per cent. on the sale of imported goods for the mines. It is said that the Standing Committee of the Combined Chamber of Commerce and the Commercial Exchange are negotiating this important concession. The premium is expected to go much higher than the present rate of 6 per cent. The reason is that we are exporting so much more of our products, including gold and diamonds, than we are receiving from Great Britain. Undoubtedly pessimistic talk goes to the extreme with reference to what would happen when some of the poorer grade mines close down through absolute exhaustion. But it must be taken into account that the Aurora West people had a conference with the mine workers, of whom some 40 (white) men have voluntarily retrenched themselves so that the mine can have another two years' life instead of closing down; and also again the City Deep have arranged for the City and Suburban Mine works to be absorbed, thus keeping the outcrop mine working for the long life provided for in the City Deep's immense area. These may be well termed bloodless victories for our future, and it is a very hopeful sign that the mines and the employes are endeavouring to work harmoniously together to keep our great industry from slacking overmuch.

TIMBER AND BUILDING MATERIALS.

Deals are very difficult to get for the small floating quantities outside the contracts, as the price is 2s. to 2s. 3d. a foot. There is also a great scarcity of scantlings, so much so that houses are held up waiting for roofing timbers. There is a certain amount of flooring, but one cannot obtain the exact lengths, and has to take footage and not specified lengths. Floorings, 10¼d to 10½d.; ceilings, 7¼d. to 7½d., roofing iron, 1s. 6½d. to 1s. 8½d Business in the timber yards continues quite fair, but it may be a little slacker than last month before the proposed Rent Bill came under review. The second-hand building material yards are acutely bare of stocks, and although several establishments were visited no practical quotations could be obtained; two of them said they were inclined to go for a holiday and shut down for a while, for it seemed hopeless to get stocks. Porcelain baths are up 30 per cent. in Britain, and cast iron pipes, for lavatory and other purposes, ar also 25 per cent. advanced. A firm has a large consignment of builder's hardware now being delivered from London at such high prices that it could have been purchased cheaper in Johannesburg only a few weeks ago, and obviously a reasonable profit has now to be added, which means they will, in a measure, be out of the local market until values firm up, which they are gradually doing. Their advantage at the moment is that they have a few lines that practically no one else has .

IRON AND STEEL.

A letter received by last mail says that there is a talk in reference to a further rise in wages in Britain on account of the higher cost of living, therefore no quotations are given. All values are advancing, one reason being the difficulty of getting raw materials, which are double the price of those obtaining during the Franco-German War of '71-71. Imported mild steel in Johannesburg is 37s. 6d. to 40s., bolts and nuts advancing 3-8in., 1s. 6d. lb.; ½in., 80s.; 5-8in., 75s.; 7-8in., 65s. Showels, 65s. doz.; barrows, 70s. to 7s5.; drill steel, 7½d. lb.; hollow, 1¼ in. now landing, 1s. 1d., but ordinary quotations now are 10s. to 1s.; tool steel, 1s. 3d. to 1s. 6d.; brass rods, 2s. 3d. lb. Steel plates are in great demand with poor supplies in many sizes, 1-16 and 1-8 in., 6s5.; 3-16in., 60s.; 3-8in., 50s. to 52s. 6d.; ½in. and thicker, 47s. 6d. to 50s. 100 lbs. Business is exceptionally good for the bar iron and steel trade, particularly the Dunswart and Vereeniging outputs, assisted by the large quantities now arriving, recently purchased from the

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7 in.)

COULD PRODUCE

Rounds and Squares (to 6 in.), Channels, Joists, Tees Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

British Government. Small round bars of steel are almost unobtainable. The demand is good from the engineering and foundry shops in Johannesburg and Reef, as well as from Zanzibar, Delagoa Bay and similar outlying places. The merchants having the actual stocks in Johannesburg are those doing well, as people are nervous about ordering quantities from oversea and being left at the mercy of the manufacturers in either England and America. Competition between these centres will become more and more keen, particularly now that the New York bank at Capetown is assisting in the exchange, and the rebate off importations from Britain of half the exchange—the world is moving and there is no gainsaying it.

THE WAY OF THINGS.

The shipping business is much the same excepting the outward freights from London are 10s. per ton extra owing to the increased coal charges, but prices from this side have not been affected, neither are they expected to be. The cargoes are not so plentiful just now between the Cape and London, in fact they have been erratic since the increased bank charges, which have affected the dealings in wool and other South African products. There is getting an acute shortage in newspaper as well as the writing and the higher class papers generally. The latter has been caused by the shortage of cotton in America for the paper mills, and the newspaper through the shortage of wood pulp, so much so that the price c.i.f. is about £90 per ton, as compared with £12 10s. before the War. Already this has affected Johannesburg in increased price for advertisements, but so far no increased prices for the newspapers have been made. There has been some comment on the Native Labour Association supplying the natives with blankets and a few other essential necessaries of life to allay some of the discontent, and notwithstanding any of the adverse comments at present, it seems likely that this programme on the part of the sponsors responsible for the natives will be continued. According to a Parliamentary answer, it was publicly given forth that the General Mining and Finance Corporation has not yet succeeded in raising the necessary funds in London to re-open the Cinderella Deep Mine. This is not altogether surprising, considering the state of the Mine Market generally. It may be that the wonderful Budget now being negotiated at Westminster will stabilise matters somewhat, when money will be found for not only the Cinderella Deep and for others.

We have received a little note about the Japanese shaving brushes being prohibited in Britain and the whole of the brushware being prohibited by the United States. There is a little satisfaction about the matter, that is that the anthrax was produced in the shaving brushes through the animals from which the bristles were obtained suffering from the disease.

LIMITED LIABILITY—PRIVATE COMPANIES.

A long time ago some comments were made in the notes in reference to the private limited liability companies. The origin of those was a casual remark made by an insolvent who said that the new Bankruptcy Act was more difficult to negotiate, therefore it was an easy way out of any entanglement by turning oneself into a limited liability company. At the present moment the Private Limited Liability Law is a blot on our Statute Books. However, a few strokes of the pen can alter all that. The Only Economic Building Association and Shilling Bank, Ltd., now in liquidation, has brought the question to the front in all its devilish hardness of heart, when things go all awry. The joke of the matter, if it were not so serious, is that the Government is powerless to protect its own citizens, and in this case they are mostly the uneducated and natives. To put the matter to an extreme issue a private company can be registered for two farthings, one for each of the only two shareholders. This is not such an extreme case as one would suppose, as there was a farthing per share company duly noted and published in M.O.T. some years ago. In the company now under review, Harris Horwitz holds 4,999 shares and Betsy Horwitz, jointly with Harris Horwitz, also holds 4,999, out of a total of 10,000 shares. As the Government cannot hold an inquiry into any company's affairs, except on the application of members holding not less than one-tenth of the shares issued, this practically one-man company was high and dry from interference whilst it could keep its doors open. Fancy the Government of one's own country being powerless to interfere and the Acting Prime Minister having to admit that circulars, although so phrased as likely to mislead the ignorant or unwary persons, no criminal action could be taken. The secrecy with which the private law is enshrouded behind a veritable sealed book is astounding.

Rubber Manufacture in South Africa.

In concluding an article on rubber, Mr. T. R. Sim writes in the *Journal of Industries*:—Reference has been made to the prospect of rubber manufactures taking place within the Union on a larger scale than has hitherto been attempted. On 2nd December, 1918, the Water Court for the Union assembled at the Court-house, Howick, and after hearing evidence granted the application of the Rand Rubber and Tyre Manufacturing Company, Ltd., to use power obtainable from the Howick Falls in pursuit of its industry. For this purpose the company is removing its factory from Johannesburg to Howick, and, according to reports which appeared in the papers at the time when the application was heard, it is intended to erect premises costing about £8,500, to instal machinery to the value of £26,000, to employ about 70 Europeans and 150 coloured people on a wages bill of about £26,000 per annum, and to develop electric power to the minimum amount of 500 horse-power. Such a factory naturally has to depend on outside sources of supply for its raw material, but the very presence of such a factory and of an import of raw material will probably help largely to bring about the early utilization of whatever supplies can be obtained in or near the Union of South Africa. It is much to be regretted, therefore, that none of our rubber plants offer what may be termed particularly attractive opportunities for investment, for, though in several of them there exists the probability of eventual profit if carefully and sensibly handled, it cannot be overlooked that most investors prefer to see something more certain, or else something more luring, even though risky, than rubber presents in South Africa to-day. The best proposition suggested is the systematic working of the Landolphia forests of Portuguese East Africa, the next best is the cultivation of Ceara along the coast belt, if that can be found to have been remunerative elsewhere. All the Euphorbias are subjects for the chemist rather than for the speculator, and the cultivation and tapping of any Ficus appears to me to require more area and cheaper labour than are now available in South Africa, unless Government itself undertakes this work inside its sub-tropical native locations and thereby utilizes some of the malarial areas in which neither Europeans nor natives are keen on residing. The analyses of the various species have been quoted, but even where the analysis is quite satisfactory that must not in itself be regarded as a recommendation of the plant by me, for in every case other characters have also to be considered, and, unfortunately, in each case something is absent.

Robinson Gold Mining Company, Limited.

(Incorporated in the Transvaal).

NOTICE TO SHAREHOLEERS.

NOTICE IS HEREBY GIVEN that the Thirteenth Ordinary General Meeting of Shareholders for the year ended 31st December, 1919, will be held in the Board Room, Second Floor, The Corner House, Johannesburg, on FRIDAY, 18th JUNE, 1920, at 2.30 p.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st December, 1919, and the Reports of the Directors and Auditors.
2. To elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
3. To determine the remuneration of the Auditors for the past audit and to appoint Auditors for the ensuing year.
4. To transact any other business which ought to be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Share Transfer Books of the Company will be closed from the 12th June, 1920, to the 18th June, 1920, both days inclusive.

Holders of Share Warrants who desire to be present or represented at the Meeting shall produce their Share Warrants (or may at their option deposit same) at the places and within the times following:—

(a) At the Head Office of the Company in Johannesburg, at least 24 hours before the time appointed for the holding of the Meeting.
(b) At the London Office of the Company, No. 1 London Wall Buildings, London, E.C.2, at least 30 days before the date appoited for the holding of the Meeting.
(c) At the Office of the Bànque de Paris et des Pays-Bas, 3 Rue d'Antin, Paris, at least 30 days before the date appointed for the holding of the Meeting,

and shall otherwise comply with the "Conditions as to the issue of Share Warrants" now in force.

Upon such production or deposit a Certificate with Proxy Form will be issued, under which such Share Warrant holders may attend the Meeting either in person or by proxy.

By Order of the Board,
RAND MINES, LIMITED,
Secretaries.
S. C. STEIL,
Secretary.

Head Office:
The Corner House,
Johannesburg, Transvaal,
15th April, 1920.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II. MAY 1, 1920. [No. 1492.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 199
Topics of the Week:
  The Position of the Industry 201
The Passing of the "City" 203
The Central of the Witwatersrand Goldfields, showing the Old Outcrop Mines 204
The Year with the City Deep 205
The Barnato Group in the March Quarter 206
Diamond Questions in Parliament 207
The Mining Interests of the "T.C.L." 209
The Latest from the "C.M.S." Subsidiaries 210
Cape Diamond Diggings Output 211
A Central Rand Pumping Scheme 211
Correspondence and Discussion: "The Far South-East Rand Geology"; "The British Income Tax—Non-Residents"; "The Logan G.M. Syndicate" 212
The Week in the Sharemarket 213
Engineering Section:
  Armstrong's Civil Engineering 214
Rhodesian Section:
  The Shabani Asbestos Fields 215
Trade and Industries Section:
  The Week in the Mining Material and Engineering Trades 217
Colliery Notes and News 219
Company Meetings: Simmer Deep; W.N.L.A 220

Notes and News

Iron and Steel Rumours.

In our last issue we quoted a statement from the *Board of Trade Journal* emanating from H.M. Trade Commissioner in South Africa to the effect that the Union Steel Corporation and the Pretoria Iron and Steel Company were to amalgamate. We are officially informed by the directors of the Union Steel Corporation that there is no truth in this report, and we hasten to give the same publicity to this denial as we did to the incorrect statement quoted.

* * * *

Sinking Progress at Springs Mines.

At the end of March it was calculated that the No. 3 shaft of Springs Mines was approximately 303 feet from the reef. Sinking is proceeding at the rate of about 160 feet per month, so that it is probable that the conglomerate beds will be encountered about the end of May or the beginning of June. Sinking has not yet been commenced at the No. 4 shaft, which is situated to the south of No. 3, but the collar set is in and sinking operations will commence after the reef has been intersected in the shaft to the north.

* * * *

A New South-West Flotation.

We learn that a new South-West African diamond flotation is being arranged. The property in question is, we understand, in close proximity to the properties of the Consolidated Diamond Mines of South Africa. The block of diamond claims now being floated yielded over four thousand carats of diamonds to their former owners, and the promoters of the new concern are very sanguine as to their ability to earn substantial profits. We are informed that the shares of the company will have a nominal value of 2s. 6d. each.

* * * *

Union Corporation.

The accounts for the year ended 31st December, 1919, show a realised net profit of £237,917, and, including £45,364 brought forward from 1918, there is an amount of £283,281 to be dealt with. The directors have decided to add £40,000 to the reserve account and to set aside £10,000 as the nucleus of an exploration reserve account, and have declared a dividend, of, 20, per, cent. (2s. 6d. per share) involving an amount of £175,000 and leaving the sum of £58,281 to be carried forward. The dividend will be payable to all shareholders registered on 20th May. The transfer books will be closed for the purposes of this dividend from May 21st to June 5th, both days inclusive. Coupons No. 9 attached to share warrants to bearer will be payable in respect of this dividend on and after June 25th.

* * * *

### A Trade Commissioner on Advertising.

The views of H.M. Senior Trade Commissioner in South Africa (Mr. Wickham) on publicity and advertising in South Africa, are published in the *Board of Trade Journal* for February 26th. Among other things, he says that the outlay on advertising should never be based on existing sales, but on potential sales. "Advertising to produce future sales is in the nature of capital expenditure. To keep the cost of advertising strictly within the bounds of what the existing turnover will bear, to expect to pay for it out of the profits on present sales, is to miss the whole point and aim of advertising. Estimate the value and profits of the turnover which it is hoped may be secured in that market, and then calculate on that basis what outlay on advertising can be afforded. It will not infrequently involve spending more for a year or two on a market."

* * * *

The Rand Mines' Report.

In another part of this issue will be found the annual report of the Rand Mines, Ltd. The question of the gold premium is dealt with by the directors as follows:—"The outstanding feature in connection with the gold mining industry during the past year has been the increased amount received by the companies for their gold. An arrangement was made with the Bank of England, under which the companies consigned their gold to the Bank, which issues licences for its re-exportation; this applied to all gold produced from about the middle of July last, and resulted in the industry obtaining a price to 31st December, 1919, equal to a premium of 26¼ per cent. above the standard value. Out of the additional revenue thus obtained companies have been obliged to give substantial increases in wages and salaries to employees. On the other hand, these increased earnings have permitted in some instances the distribution of large amounts to shareholders in the form of dividends. Although the premium only applied to the second half of the year, the total amount received for 1919 by this company as dividends from its holdings in various gold mining companies was £520,382, as against £445,163 in 1918. The first notification of increase was received in the middle of September, and advised that a price equivalent to about 16 per cent. premium had been obtained. This rate continued until the middle of November, after which it gradually rose until at the end of January, 1920, it reached £6 2s. 6d. per fine ounce—an increase of 44 per cent. Since that date the price has fallen to about £5 3s. per fine ounce, or a premium of 21 per cent.; this reduction and the increased costs hereafter referred to again bring a large number of companies within the danger zone of unpayability. The fact, however, must not be overlooked that this enhanced value has been, and is being, followed by an increase in working costs, and it may be anticipated that as the financial and commercial markets of the world become more stable the price of bullion will revert to standard sooner or later. It must be expected, therefore, that the profits earned by many of the gold mining companies will decrease, and in some cases disappear, unless the cost of working can be relatively reduced."

* * * *

The Bleloch—Minister of Mines Controversy.

We have received from Mr. Bleloch's office the following copies of correspondence that has passed between that gentleman and the Minister of Mines. Mr. Bleloch says that while he was at sea the High Commissioner published a cablegram from the Department of Mines. On his return he learnt by cable of this fact and he wrote the Minister of Mines requesting to be informed of the message and nature of inquiry that had provoked it. To this he received a postcard acknowledging receipt of his letter. Later a mail arrived from London containing the message and Press comments. Shortly afterwards Mr. Bleloch received the communication given below from the Department and replied in the letter that follows. On 27th April Mr. Bleloch received a cable dated London 27th: "High Commissioner published to-day following cable begins Paragraph 2 statement issued by Union Government 22nd March does not refer to," rest as below. Mr. Calderwood, in consequence of High Commissioner's publication, was employed by Nigel Van Ryn Company to give an independent report. He cables in terms of the cable also given below. Mr. Bleloch draws our attention to the discrepancy of dates between the Department's cable dated 5th March and the High Commissioner's dated 22nd March. The delay of a fortnight, however caused, prevented Mr. Bleloch being in London to reply. He was a day on the water when Marconigrammed of the High Commissioner's act.

Union of South Africa,
Department of Mines and Industries.
Pretoria, 21st April, 1920.

Sir,—With reference to your letter of the 8th inst., I have the honour to forward herewith for your information copies of two telegrams despatched by this Department to the High Commissioner, London, containing statements forwarded to be published in the English Press.—Yours, etc.,

Fred Blundell,
Under Secretary for Mines and Industries.

To W. Bleloch, Esq., P.O. Box, 5754, Johannesburg.

17th April, 1920.

Decode of Cablegram to Oppositely, London, 5th March, 1920.

Please publish following in suitable London papers begins. It having come to the notice of the Government of the Union of South Africa that endeavours are being made to raise large sums to exploit certain conglomerate reefs which crop out on the farms Tulpvlei 13, Klipportje 228, Heidelberg Town Lands 172, Boschfontein 270, Boschhoek 271, and Mount Arable 329, in the district of Heidelberg, Transvaal, on the ground that the said reefs include the Van Ryn reef, and that the term extension of the Far East Rand is being used in connection with the schemes. Government of the Union of South Africa desires make it known that in the opinion of its technical advisers :—(1) the term Far East Rand has a definite geographical and geological significance, and the use of the term extension of the Far East Rand for any continuous area is not warranted((2) the reefs in the Heidelberg District mentioned above are part of the Kimberley series and do not include the Van Ryn Reef, (3) the Main Van Ryn and Nigel reefs are parts of one and the same reef series, (4) the outcrop of Main Reef does not continue south-east of the Cinderella Mine. In connection with the Nigel Van Ryn Mine it has been stated in London that the Director of the Geological Survey of the Union expressed admiration of the reef in that mine, and wonder that the mine had been abandoned twenty years ago. The Director did not express those opinions.

To Oppositely, London, dated 7th April, 1920.

17th April, 1920.

With reference to your telegram of 26th March, 727, please publish further announcement to effect that paragraph two of statement issued by Union Government of S.A. on 5th March does not refer to Nigel horizon underlying farms mentioned and has no bearing on its value there.

23rd April, 1920.

To Hon. Minister of Mines and Industries, Pretoria.

Sir,—I have the honour to acknowledge receipt of your letter Ref. No. M.M.2110-19, of the 21st inst. in reply to mine of the 8th inst., and covering copies to two telegrams despatched by your department to the High Commissioner, London. Inasmuch as the newspapers from London containing the earlier of these messages have now been received and indeed the message itself has been published here, I am obliged to say that the department has been late in acquainting me with the messages, and this discourtesy or oversight is none the less important because the telegram referred to was published in London when I had already embarked on the voyage to South Africa. In my letter to you of the 8th inst. I requested you to be so good as to instruct the department to send me a copy of the message and also to inform me of the inquiry or requests which occasioned it. In the *Rand Daily Mail* of to-day the motive of the Department in issuing such a statement is debated, and naturally so, but I take it that you will have no objection in informing me without delay of the name of the person or persons who instigated the preparation of the message. With reference to telegram date 17th April, I shall be glad to learn what it means. If the reefs in the Heidelberg District on the farms mentioned in your telegram do include the Nigel Horizon (which you say does underlie those farms) while at the same time you identify the Nigel Reef with the Van Ryn Reef (or reefs) it is difficult to understand how the Van Ryn Reef is not included where the Nigel is. In other words, while your first telegram states the farms mentioned do not include the Van Ryn Reef your second telegram states that they include Nigel Horizon, which, in the opinion of your advisers, amounts to the same thing. As for the term "Far East Rand," it was first used and most continuously by a journalist, formerly editor of the S.A. Mining Journal, now associated with me, and I am at a loss to understand how it has since acquired the "geographical and geological significance" which ceases at the conventional boundary of the farms exploited by Anglo-German financiers. I have further to remark that the Government Mining Engineer includes the Nigel Van Ryn, and therefore the Southern Van Ryn in his memorandum to the select committee of Parliament on State areas of the Far East Rand, and as the outcrops of the various reefs can be traced south-west from the Nigel Mine, and as you rightly say, the Nigel Horizon underlies farms Tulpvale, Klippoortje, Heidelberg Town Lands, Boschfontein, Boschhoek and Mount Arable in the Districts of Heidelberg, what justification remains for your warning to the public against investing capital for the opening up of these areas? I notice that the copies of telegrams referred to are stamped by the Johannesburg Government Mining Engineer's office, and I shall be glad if when you are sending me the information requested of this and my former letter you will inform me whether the message originated in Johannesburg or Pretoria, and whether it was requested by private persons in London. In the latter case I shall be glad to learn the names of the persons concerned.—Yours, etc.,

W. E. Bleloch.

P.S.—As you have already published, I am taking the same course.

Copy of Cable to Lawson, Secretary of Nigel Van Ryn Reef G.M.C., by Mr. J. M. Calderwood.

Have examined Nigel Van Ryn can confidently state reef being developed is eastern extension Nigel Reef as indicated on plan attached Government Mining Engineer's Report, dated third February nineteen sixteen. This has now been confirmed at interview with Doctor Rogers, Government Geologist, present on property, who stated to me that reef exposed is Nigel to best of his belief. Development formerly undertaken 1896 was chiefly on Dyke contract. Company need have no hesitation pushing ahead with mining operations fully justified by results to date. Work accomplished reflects highest credit to management regarding efficiency and economy. Report follows.

TOPICS OF THE WEEK.

THE POSITION OF THE INDUSTRY.

Several important public pronouncements have combined to focus attention on the position of the Rand mining industry during the past week. First there was the serious warning note sounded by Mr. D. Christopherson at the Simmer Deep meeting. With all possible emphasis and sincerity Mr. Christopherson explained the position of the mine, and showed that long threatenings were about to come at last unless something could be devised at the twelfth hour to arouse the Government, the employees and the general public to the urgency of the case. Mr. Christopherson's remarks are quoted in another part of this issue, and apparently the only result they have produced in the Union Parliament is a violent partizan attack on the industry and the Phthisis Board from Dr. Visser, coupled with an official confirmation of the increase in railway rates which merely adds more burdens to the mines. Mr. H. O. Buckle's speech at the annual meeting of the Witwatersrand Native Labour Association—the East Coast recruiting organisation—was none too encouraging; but it remained for the General Secretary of the Industrial Federation, Mr. Crawford, to make public admission of the dangers of the industrial situation in language that none can ignore. Special point was lent to Mr. Crawford's remarks by the announcement made the same day that the New Goch, following the case of the Aurora West, was compelled to retrench a big proportion of its employees. "It was all very well," said Mr. Crawford, "for a 'mining magnate' to say a week or two ago that we need not anticipate any overwhelming calamity. If I were as confident as he appeared to be that the workers would readily agree to accept less wages or to acquiesce in the modification of the colour bar, I would probably share his opinion, because I am satisfied that it is only in that direction that the economic calamity I speak of can be avoided. But what I fear is the trouble which will arise before the workmen of these fields would be prepared to adapt themselves to lower wage standards or the removal of the restrictions on the extended employment of coloured labour." Mr. Crawford declared that people who wished for the welfare of the world could not wish to perpetuate the high price of gold, because that could only exist so long as economic conditions in Europe were disturbed. The more speedily order was evolved out of the chaos in Europe, the more speedily would the price of gold recede. It was true that a reduction in the price of gold would mean a reduction in the cost of living, but the trouble was that the reduction of the gold premium would instantaneously affect the Rand, whereas any reduction in the cost of living would be a more gradual process, taking perhaps many months to make its full effect felt here. We should be hit by lower bullion prices before we felt the effect of the corresponding reduction in the cost of living. This is, of course, a very sound view, and agrees with what we have been saying all along. In another sentence, Mr. Crawford put the matter succinctly: "The mines," he said, "cannot offer the same opposition to a drop in the premium as the workers will offer to any reduction in wages, and the result must inevitably be an economic crisis surpassing anything which has ever occurred in the whole history of the Rand." Mr. Crawford then referred to the Low Grade Mines Commission and said that its interim report contained perhaps some of the most valuable suggestions that the Commission had had to make. And it was a pity that those suggestions had not been carried out with more alacrity. He reviewed the three principal recommendations—the importation of tropical labour, the re-arrangement of underground work with a view to more economic production, and the recognition of joint works committees. "Already," he said, "the anxiety as to the immediate future has set both the Federation and the Chamber of Mines moving in respect to the recommendations." Meetings are to be held next week to bring these matters to a head, in so far as the Chamber of Mines and the Unions can act without the Government. Mr. Crawford offered a suggestion regarding an unemployment fund to be contributed to by the Government on a pound for pound principle and concluded with the warning: "One thing is certain: it is only by tackling this question right away that disaster can be averted. If nothing is done and we wait until we are hit, there is bound to be chaos and confusion, and as a matter of fact wholesale disorders." There is nothing we can add to give emphasis to this reasoned advice of the Federation Secretary; but we may be permitted to hope that it will be taken to heart by Parliament, the public and the employees concerned.

Points from the Rand Mines' Report.

The annual report of Rand Mines, Ltd., as usual contains a wealth of information both in regard to the industry generally and particularly in respect of the operations and status of subsidiary companies in which the parental organisation is interested. Amongst the many interesting features of the report the voluminous references to ore reserves call for special mention. The figures for individual companies as at the dates of the last financial years are as under: Brakpan Mines, 2,484,000 tons, 8·74 dwts.; City Deep, 3,418,050 tons, 9·4 dwts.; Consolidated Main Reef, 1,200,900 tons, 7·6 dwts.; Crown Mines, 8,451,400 tons, 6·3 dwts.; Durban Deep, 418,700 tons, 6·6 dwts.; E.R.P.M., 2,634,350 tons, 6·3 dwts.; Ferreira Deep, 807,880 tons, 8·2 dwts.; Geduld, 2,580,000 tons, 7·4 dwts.; Geldenhuis Deep, 1,375,200 tons, 5·9 dwts.; Modder B., 3,215,100 tons, 9·0 dwts.; Modder Deep, 3,775,000 tons, 9·1 dwts.; Modder East, 850,000 tons, 8·0 dwts.; New Modder, 8,854,300 tons, 8·5 dwts.; Robinson Deep, 1,583,000 tons, 6·59 dwts.; Robinson, 229,400 tons; Rose Deep, 3,031,280 tons, 5·2 dwts.; Springs Mines, 2,417,298 tons, 8·74 dwts.; Jupiter, 588,000 tons, 5·82 dwts.; Wolhuter, 639,894 tons, 5·7 dwts.; Village Deep, 2,389,700 tons, 6·3 dwts. The additional amounts realised for gold on account of the premium were: Brakpan, £98,774; City Deep, £133,115; Crown Mines, £286,309; E.R.P.M., £194,613; Geduld, £77,757; Geldenhuis Deep, £66,838; Jupiter, £32,000; Modder B., £151,093; Modder Deep, £113,031; New Modder, £191,894; Nourse Mines, £59,072; Robinson Deep, £93,059; Rose Deep, £71,314; Springs Mines, £88,584; Village Main, £30,139; Wolhuter, £18,599; Village Deep, £80,104.

* * * *

Belgian Congo: Progress and Prospects.

In the course of a debate in the Belgian Chamber on the Colonial estimates, the Minister for the Colonies made a statement in regard to the situation in the Congo. He dealt first with the economic situation as affected by the War, pointing out that the export of rubber and ivory had been largely replaced by exports of such commodities as palm nuts, of which more than 35,000 tons were exported in 1917, and copper, of which 27,500 tons were exported in 1917 as compared with 1,900 tons in 1913. The export of gold and diamonds had also considerably increased. At the same time the Banque du Congo had greatly increased the number of its agencies, and the number of industrial and commercial establishments had risen from 956 in 1913 to 1,751 in 1917. After paying a tribute to the work of the Colonial officials during the War, and referring briefly to the military operations conducted by the Colony, the Minister went on to discuss the policy to be adopted in the future in order to maintain and increase the prosperity acquired during the War. The system of internal transportation, he said, must be revised. Steps were already being taken to increase the carrying capacity of the Matadi-Leopoldville Railway. The many different railway schemes had been co-ordinated, and a Commission was shortly to be sent out to prepare plans on the spot. The Katanga railway was already inadequate, and its present terminus at Bukama was not satisfactory. It was therefore to be prolonged for another 80 kilometres. The first section of a line towards Benguela was also to be constructed, and the Great Lakes Railway, which had reached Lake Tanganyika during the War, was to be extended. Other schemes included a railway from the industrial district of the Katanga to the populous Kasai region, and another from Kilo to the Congo. The waterways were also to be improved.

SIEMENS BROTHERS
& CO., LIMITED.

CABLES AND ACCESSORIES

TELEGRAPH
TELEPHONE AND
SIGNALLING APPARATUS

OVERHEAD LINE
EQUIPMENT

PRIMARY CELLS
&c., &c.

SIEMENS BROTHERS & Co., Ltd.,
WOOLWICH, LONDON, S.E.18
ESTABLISHED 1858.
Telegrams: "Siemens, Woolwich"
Telephone: City 6400 (7 lines).

HOME BRANCHES:
BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:
CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:
A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.
Telephone 1202.
Telegrams: "SIEMENS."

THE PASSING OF THE "CITY."

Almost the last of Johannesburg's Outcrop Mines—Material and Sentimental Aspects—Record of By-Gone Days—The Men who Made the Central Rand.

With the talked-of absorption of the City and Suburban by the City Deep the last of the old outcrop mines (excepting the Robinson) which lie immediately south of the town of Johannesburg, and which won for the Rand its first fame as a goldfield, will cease to exist as a separate entity. From a purely sentimental view there is something pathetic in the passing of all these old pioneer propositions which in the late eighties drew people from the four corners of the earth to the Witwatersrand, and which were the foundation-stones of a mining camp which has become the leading golden city of the world. At the time of the Boer War the outcrop properties running along the southern side of the town from Mayfair on the west to Jeppes on the east were producing nearly a quarter of the Rand's entire output.

Some High-grade Returns.

It is interesting, if only to recall old times, to turn back to the stirring pages of '99, and to see what these old outcrops produced in the first month of that year. The figures are:—

Mine.	Stamps.	Output.	Value per ton.
Bonanza	60	£29,706	104·45
City and Suburban ...	160	47,703	51·01
Crown Reef	120	43,837	49·61
Ferreira	80	47,927	92·97
Johannesburg Pioneer..	30	12,756	82·67
Jubilee	50	10,348	38·44
Robinson	140	64,015	71·50
Salisbury	50	9,669	33.87
Wemmer	50	22,620	67·45
Worcester	40	11,180	43·84

Those were the days before the tube mill, the high-duty stamp, the eight hours shift, the consulting engineer dashing along the Reef in his motor-car, Trades Unionism, and the development of the deeper levels and the Far East Rand. There were other problems in those times of 21 years ago—Krugerism and the Dynamite Monopoly, for example.

But they managed to rub along fairly well, all the same, did these old town mines. With 720 stamps in mills which ground out duties that would instantaneously get any present-day reduction officer the sack, they recovered three hundred thousand pounds' worth of gold per month, and their average recovery was a good three pounds to the ton.

The Pioneers.

There is a general disposition on these fields to condemn the Cornishman and to thank a generous Providence that the Cousin Jack invasion is a thing of the past. But it should not be overlooked that the man from the other side of the Tamar was the essential factor in the establishment of the Rand, and particularly of the heart of the Witwatersrand. Many who read these lines will recollect that John Harry Johns held the reins of management at the Ferreira, "Burly Joe" Richards was in charge at the Deep, Thomas of Dolcoath at the City, whilst Charlie Gluyas ran the Salisbury and Jubilee, and Faull was closely associated with the Pioneer.

How Times Have Changed.

These names, at one time household words in the circles of Rand mining, passed from our midst long ago, and their bearers are either retired or still delving in other fields, or else have cross-cutted into the undiscovered country. Times have changed vastly since those days, when ability, to speak in the vernacular, to play a good game of Rugby ensured one a "start," but it is to be very much doubted whether they have changed for the better, in so far as the spirit of the Reef is concerned. Be that as it may, Johannesburg is faced with the fact that most of its old outcrop mines have come to the end of their tethers. The passing of the City marks yet another milestone on the road of industry, and it cannot be long now before the Robinson goes the way of all flesh and of all gold mines, and completes the sequence of dismantled headgears and caving workings from Fordsburg to Jeppes.

Quite apart from any sentimental aspect of this matter, the exhaustion of the mines of the Central Rand has a very real and material moral for Johannesburg, the Reef and South Africa. It means that we must look more and more to the Far East for the golden life-blood which has for so long sustained the country.

Development of the Far East Rand is progressing on a far mightier scale than was ever dreamed of in the pioneer days of the Central Rand. Bigger capitals, larger plants, vastly greater reserves of ore are the keynotes of our progress to-day.

Recollections and a Tribute.

In the face of such colossal efforts we are almost tempted to despise the comparatively puny achievements of the old Ferreira, the miniature mills of the Jubilee, Salisbury, Pioneer and Worcester, and the recent record of the well-nigh exhausted old City. But Johannesburg would be grossly ungrateful if it failed to remember that it was these old mines which, with small capitals and rich ore, paid dividends which cast the golden glamour of the Rand into the four corners of the world. And Johannesburg, too, should not forget the men, most of them long since buried in some quiet churchyard six thousand miles away, who delved from outcrop in the days when phthisis was termed "miner's complaint" and the Central Rand was the pride and hope of the gold mining world.

Saving Waste Coal.

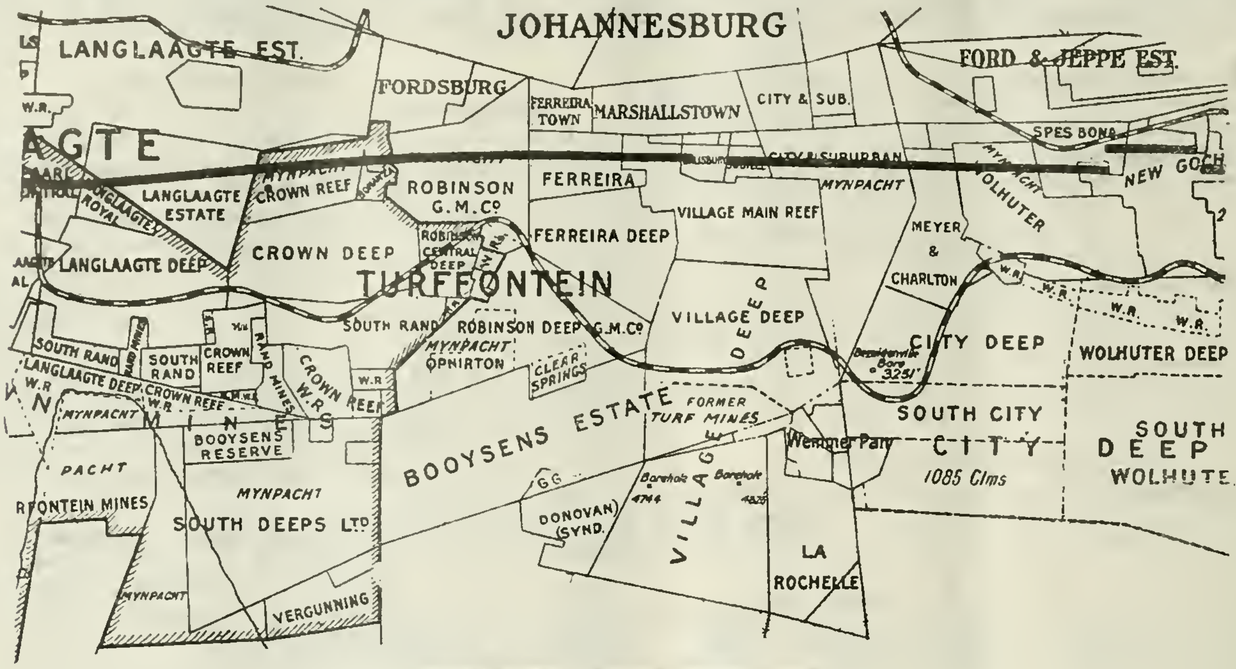
The coal industry in Great Britain has been excited lately by rumours of a new method of washing such coal as washery-waste refuse in pit dumps, screen waste, and others which cannot be readily dealt with by ordinary methods. This method is an adaptation of one which has been frequently used for washing and concentrating mineral ore, but it has only just been perfected for removing ash from coal. The refuse coal is crushed and fed into a hopper containing water, at the bottom of which is a four-bladed propellor which revolves at between 400 and 450 revolutions per minute. By adding a small quantity of tar or oil to the water a froth is formed when the water is agitated—an action which is aided by air drawn in by the propellor. The minute bubbles of air thus formed attach themselves to particles of coal and, when the liquid is passed into a side hopper, form a scum which can be drawn off to a settling tank. By repeating the process practically all the fine coal can be recovered. Up to recent times coal has been so cheap that such a process was considered hardly worth while, but with the enormous increase in cost it pays to recover all the coal which was formerly wasted.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

THE CENTRAL SECTION OF THE WITWATERSRAND GOLDFIELDS SHOWING THE OLD OUTCROP MINES.



Cape Diggings Diamond Output.

The following is the official statement of the output of diamonds from the public diggings in the Cape Province during the month of March, 1920 :—

BARKLY WEST DISTRICT.

Bad Hope	4	9¼	106	0	0
Delport's Hope	19	48¾	801	15	0
Forlorn Hope	2	4¼	106	10	0
Gong Gong	33	166½	2974	0	0
Good Hope	79	299	2742	6	0
Harrisdale	36	144¼	2546	10	0
Hebron	56	204	3412	5	0
Holpan	25	80½	1398	5	0
Jonas Kopje	6	29¼	224	10	0
Kareepan	31	186¾	3295	10	0
Keiskama	2	4	24	10	0
Klipdam	46	166½	2508	17	6
Klipdrift	70	275½	3089	15	0
Last Hope	4	68¼	1293	0	0
Longlands	45	163½	2036	10	0
Niekerk's Rush	12	88½	1946	15	0
Rickett's Pros.	10	42¼	230	5	0
Snyder's Rush	11	42	575	0	0
Scholtz's Pros.	13	19	179	15	0
Van Zoelens Laagte	8	37½	795	0	0
Waldeck's Plant	45	251¼	4217	7	6
Ward's Hope	4	19½	237	0	0
Winter's Rush	24	235¾	3599	7	6
	585	2586	£38340	13	6

N.B.—The number of claimholders in the Barkly West District during March, 1920, was 1,625.

HERBERT DISTRICT.

Brypaal	17	33½	324	15	0
Davis Drift	11	89	780	15	0
Mosesberg	19	153	2280	7	6
Plaátdrift	1	8½	142	10	0
Schmidt's Drift	26	102	2062	10	0
Sevoncelles	2	9¾	128	0	0
	76	345¾	5718	17	6

KIMBERLEY DISTRICT.

Robinson's Kop	12	113	4434	10	0
Wedburg	28	118¾	2372	15	0
	40	231½	6807	5	0

TAUNGS DISTRICT.

Home Rule	58	700¾	9451	2	6
Killarney	11	56¼	806	17	6
Tlaping	8	19¼	271	10	0
	77	776¼	10529	10	0

PRIVATE ESTATES.

River View Diamond Syndicate		108¾	2218	15	0
Pniel Estate		278¾	7482	10	0
New Vaal River D. & E. Syndicate		910	23371	0	0

SALISBURY, RHODESIA.
WIGG & JENKINS,
MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.
Gold and Base Metal Properties
FOR SALE AND WANTED.
Correspondence invited.
P.O. Box 118. Telegrams : "WIGG."

ASBESTOS
HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

THE YEAR WITH THE CITY DEEP.

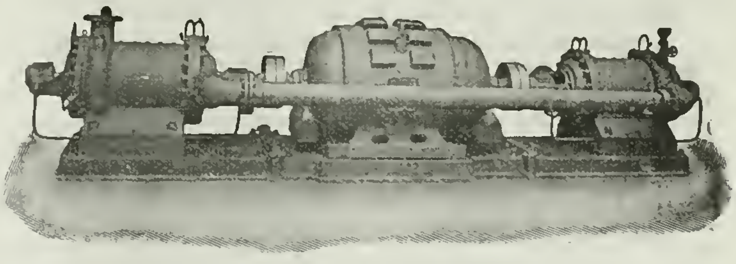
Yield and Ore Reserves Maintained—Decline in Native Labour Supply—Satisfactory Development Values.

The following is a summary of the principal features of the work of the past two years of the City Deep:—Tons milled: 1918, 670,100; 1919, 617,800. Working costs per ton: 1918, 21s. 8d.; 1919, 27s. 9d. Revenue per ton at standard price of gold: 1918, 38s.; 1919, 38s. 3d. Profit per ton at standard price of gold: 1918, 13s. 4d.; 1919, 10s. 6d. Profit at standard price of gold: 1918, £447,294; 1919, £324,572. Revenue from premium on gold: 1919, £133,115. Total profit: 1918: £447,294; 1919, £457,687. Development footage: 1918, 18,780; 1919, 17,267. Ore reserve tonnage: 1918, 3,342,700; 1919, 3,418,050. Average value of ore reserve: 1918, 9·6 dwts.; 1919, 9·4 dwts. Coloured labour strength (average): 1918, 4,982; 1919, 4,465

Mr. E. H. Clifford, the Consulting Engineer, writes:—"It will be noticed that, although the profit is practically the same as that of the previous year, a large part of it was due to the extra price of gold. The yield per ton remained at about the figure that has prevailed for many years past, but there was a decline in the tonnage milled on account of a decrease in the native labour supply, and an increase in the cost of pratically every item of expenditure. The decline in the native labour supply was, under the circumstances, most serious, and prevented justice being done to the capabilities of the mine. Notwithstanding the smaller tonnage treated, the total operating costs were, roughly, £30,000 more than in 1918, and there are no signs that we have yet reached the limit in this respect—on the contrary, it is most probable that costs will be still higher during the current year. Development values continue to be satisfactory, although not quite up to the average of the last two or three years. The falling away, however, has been slight, and is due to the relatively small amount of development work done in the very rich area in the north-western corner of the property. In the lower part of the mine the prospects are good. As was anticipated, the 14th level west drive is opening up ore of a highly satisfactory value. On the 15th and 16th levels west of No. 2 shaft the values are, for the most part, poor, but the 17th level west drive is disclosing payable ore. Practically the whole of the area between No. 2 shaft and No. 1 shaft is payable. Very little has been done in the faulted area lying to the east of No. 1 shaft, and values in this locality, as far as it is possible to judge, appear to be poor. Good progress was made in the sinking of the south shaft. The costs were particularly satisfactory, being £22 16s. 3d. per foot for the last six months of the year, during which period the distance sunk was just under 1,000 feet. The ore in reserve at 31st December, 1919, was as follows:—Main Reef, 77,700 tons, value 5·9 dwts. per ton; Main Reef Leader, 3,340,350 tons, value 9·5 dwts. per ton; total, 3,418,050 tons of a value of 9·4 dwts. It will be observed that the ore reserve position has been well maintained, notwithstanding the fact that, on account of the shortage of native labour, the development footage was considerably less than previously. It is considered advisable that a more active development policy should now be undertaken. Negotiations have been entered into with the adjoining outcrop companies regarding the installation of a central pumping station. The object is to prevent as much water as possible from flowing to the deep-level mines when the outcrop mines are exhausted and closed down. The pumping station will be located on the 18th level of the City and Suburban Mine, and the Village Deep has agreed to share in its cost. In regard to the prospects for the current year, there is no reason to expect any change of importance in the yield of gold per ton, but it is impossible to forecast the other principal factors, namely, the native labour supply, the gold premium, and the operating costs. To a considerable extent these factors are interdependent and tend to counteract one another, and it is unlikely that they will move in an unfavourable direction simultaneously."

Inter alia, the Manager, Mr. P. Sherwell, writes:—"The results for the year were disappointing. Compared with 1918, the profit on current operations, excluding gold premium, shows a decrease of £122,722. The lower profit is due to decreased tonnage milled, as well as to the considerable increase in the cost of production, which is mainly accounted for by (1) shortage of native labour following on the influenza epidemic during the latter part of 1918; (2) the increase in the cost of living has necessitated a further increase in the pay of our white employees; (3) the company's contribution under the Miners' Phthisis Act, 1919, has greatly increased, and now approximates £2,800 per month; and (4) a further increase in the cost of stores and railway rates. The development footage for the year shows little difference when compared with 1918. Little work was done in the incline shafts during the year, but preparations are in hand to sink both to their final depths as soon as possible. No. 2 incline is being sunk at present, but No. 1 cannot be re-started until the new hoist is in commission. 184,899 tons of sand were lowered into the mine, and very little trouble was experienced in the underground workings during the year. The fatal accident rate for the year was 0·4 per 1,000, as against 4·2 the previous year, and I am pleased to be able to record that we have won one of the prizes for the "Safety First" Competition instituted by the Rand Mutual Assurance Company, Limited."

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN
MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

THE BARNATO GROUP IN THE MARCH QUARTER.

Points from the Reports of Mine Subsidiaries.

Reports issued by the Johannesburg Consolidated Investment Company in respect of operations for the quarter ended with March last have now been issued. The results of crushing operations at the eight productive subsidiaries of the group may be summarised as under:

	Tons Crushed.	Revenue.	Per ton.		Working Costs.	Per ton.		Working Profit.	Per ton.	
		£	s.	d	£	s.	d.	£	s.	d.
Consolidated Langlaate	122,300	181,510	29	8	149,005	24	4	32,505	5	4
Govt. Areas	343,000	742,419	43	3	405,114	23	8	336,645	19	7
Langlaagte Estate	102,350	151,660	29	7	141,283	27	7	10,377	2	0
New Primrose	82,000	57,303	22	0	53,532	20	7	3,771	1	5
New Unified	30,900	44,662	28	11	34,509	22	4	10,153	6	7
Randfontein Central	422,500	623,643	29	6	587,443	27	10	36,200	1	8
Van Ryn Deep	151,300	425,328	56	3	187,236	24	9	238,092	31	6
Witwatesrand	103,450	148,073	28	8	122,898	23	9	25,175	4	11

The following notes are abstracted from the quarterly reports:

Consolidated Langlaagte.—The expenditure on capital account amounted to £2,615, and debenture interest to £1,031. During the quarter there was an increase of 8,300 tons in the quantity of ore crushed, but the working costs were higher by 1s. 9d. per ton. The working profit for the quarter was £32,505, which was an increase of £10,214 as compared with the previous three months when gold was taken at the standard price. The development footage sampled totalled 2,530 feet, and gave the following results: Payable, 590 feet, having an average value of 44·6 dwts. over 10·7 inches of reef; unpayable, 1,940 feet, having an average value of 7·5 dwts. over 11·9 inches. The average number of natives at work underground during the quarter was 2,372, as compared with 2,205 for the preceding quarter.

Government Gold Mining Areas.—The quantity of ore crushed during the quarter was increased by 5,000 tons as compared with the previous three months. The working costs were 1s. 11d. per ton higher, and the working profit was £336,645, which was an increase of £92,246 over that for the preceding quarter, when gold was taken at the standard price. The development footage sampled totalled 4,600 feet, and gave the following results: Payable, 2,680 feet, having an average value of 16·3 dwts. over 51 inches of reef; reef partly exposed, 110 feet, having an average value of 5·4 dwts. over 12 inches; unpayable, 1,810 feet, having an average value of 3·4 dwts. over 37 inches. The average number of natives at work underground during the quarter was 5,679, as compared with 5,401 for the preceding quarter. The payable ore reserves which were re-calculated at the end of the year now stand at 10,959,800 tons.

Langlaagte Estate.—The expenditure on capital account amounted to £16,915. The quantity of ore crushed during the quarter was 2,440 tons less than for the previous three months, and the working costs were 4s. 1d. per ton higher. The working profit was £10,377, which was £4,981 more than that for the preceding quarter, when gold was taken at the standard price. The development footage sampled totalled 1,395 feet, and gave the following results: Payable, 1,054 feet, having an average value of 31·2 dwts. over 14 inches of reef; unpayable, 341 feet, having an average value of 6·1 dwts. over 13 inches. The average number of natives at work underground during the quarter was 2,379, as compared with 2,231 for the preceding quarter.

New Primrose.—The quantity of ore crushed during the quarter was 4,900 tons more than that crushed in the previous three months. The working costs showed an increase of 8d. per ton. The working profit was £3,771, being £1,241 more than for the previous quarter, when gold was taken at the standard price. The development footage sampled totalled 493 feet, and gave the following results: Payable, 344 feet, having an average value of 12·1 dwts. over 41 inches of reef; unpayable, 149 feet, having an average value of 5 dwts. over 22 inches. The average number of natives at work underground during the quarter was 1,096, as compared with 965 for the preceding quarter.

New Unified.—The quantity of ore crushed was 700 tons less than for the previous quarter, and the working costs were 3s. 5d. per ton higher. The working profit for the quarter was £10,153, which was £5,486 more than the preceding three months, when gold was taken at the standard price. The development footage sampled totalled 30 feet, all of which was payable, having an average value of 92·7 dwts. over 4·3 inches of reef. The average number of natives at work underground during the quarter was 576, as compared with 540 for the preceding quarter.

Randfontein Central.—The expenditure on capital account amounted to £130,175, and debenture interest to £34,734. The quantity of ore crushed during the quarter was 3,300 tons more than in the previous three months. The working costs at 27s. 10d. per ton showed an increase of 4s. 2d. over the preceding quarter. The working profit for the quarter was £36,200 as compared with a loss of £9,691 for the previous quarter, when gold was taken at the standard price. The shaft sinking accomplished was as follows:—No. 9 shaft, feet sunk 75; total depth 1,515ft.; south vertical shaft, feet sunk 292, total depth 3,809ft. Sinking was stopped during the quarter at the north vertical shaft in order to concentrate work on the pumping plant, air and water mains and cables. The development footage sampled totalled 7,241 feet, and gave the following results: Payable, 5,462 feet, having an average value of 23·9 dwts. over 18 inches of reef. Unpayable, 1,779 feet, having an average value of 9·5 dwts, over 18 inches. The average number of natives at work underground during the quarter was 12,517, as compared with 11,635 for the preceding quarter. A serious accident occurred at Block A shaft on the 31st March, 1920, when a portion of the hanging wall fell away at the 10th level, and stripped the shaft to the 19th level. This will seriously interfere with the tonnage crushed, and average grade, for three months.

Van Ryn Deep.—The expenditure on capital account amounted to £6,921. The quantity of ore crushed was 6,800 tons more, and the working costs at 24s. 9d. per ton were 2s. 7d. per ton higher than for the previous quarter. The working profit was £238,092, being £67,401 higher than the working profit for the preceding three months, when gold was taken at the standard price. The development footage sampled totalled 1,701 feet, and gave the following results: Payable, 928 feet, having an average value of 17 dwts. over 27 inches of reef; unpayable, 773 feet, having an average of 5·4 dwts. over 21 inches. The average number of natives at work underground during the quarter was 2,863, as compared with 2,489 for the preceding quarter.

Witwatersrand.—The expenditure on capital account amounted to £4,513. The quantity of ore crushed for the quarter was 7,750 tons more, and the working costs were 1s. 6d. per ton higher than for the preceding three months. The working profit was £25,175, being £20,244 more than the previous three months, when gold was taken at the standard price. The development footage sampled totalled 1,970 feet, and gave the following results:—Payable, 980 feet, having an average value of 19·7 dwts. over 29 inches of reef; unpayable, 990 feet, having an average value of 4·9 dwts. over 23 inches. The average number of natives working underground during the quarter was 1,815, as compared with 1,671 for the preceding quarter.

New State Areas.—Capital expenditure: The expenditure on capital account amounted to £59,070. Shaft sinking: The south shaft was sunk 723 feet during the quarter, and attained a total depth of 2,164 feet. The north shaft was sunk 654 feet during the quarter, and attained a total depth of 1,719 feet. Surface equipment: The railway siding was completed during the quarter, and opened for traffic to both shafts. The average number of natives at work underground during the quarter was 316, as compared with 304 for the preceding quarter.

General.—There has been an improvement in the native labour supply during the quarter. The results for February were affected owing to the natives on some of the mines being on strike. The declared profits have been arrived at by adding together the published monthly figures. The value of the gold was taken as follows:—January, £5 7s. 6d.; February, £5 10s.; March, £5 5s.

DIAMOND QUESTIONS IN PARLIAMENT.

In the House of Assembly last week, at question time, Mr. Munnik asked the Prime Minister: (1) What was the weight in carats of the diamonds found during November, 1915, in possession of the late Imperial German Governor of South-West Africa, which he had retained contrary to the terms of surrender? (2) What became of these diamonds? (3) If they have been disposed of, (a) on whose behalf; (b) when; (c) to whom; and (d) at what price per carat? And (4) if they have been sold (a) have the proceeds of the sale been credited to the Union or to the Protectorate Administration; and (b) under what estimates of revenue and expenditure this transaction is published?

General Smuts replied: (1) The weight of the so-called Seitz diamonds was 74,078½ carats; (2) they have been shipped to England for sale; (3) (a) on behalf of the private producers who owned them; (b) January, 1920; (c) to the Diamond Syndicate; (d) 78s. 3·27d. per carat; (4) (a) the proceeds of the sale will be apportioned to the producers and the Administration in accordance with their shares under the Taxation Ordinance; (b) the proceeds will be credited to the diamond realisation account of the trust account until otherwise allocated.

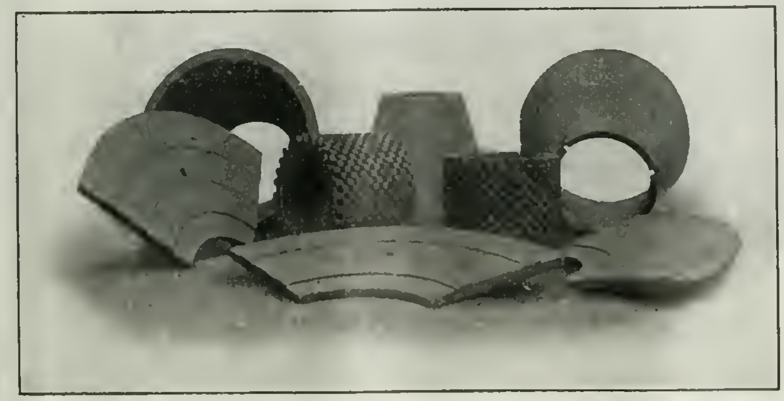
Later Mr. Munnik asked the Minister of Mines and Industries: (1) To whom does the ground belong that was worked by the Halberschied Gesellschaft, and to whom the mining rights? (2) How much of the Halberschied capital was German Government money, and how is this money affected by the agreement with the Anglo-American Co.? (3) What became of the Government Block (Fisher's Block)—has the Government still got the mineral rights for disposal? If not, how was the ground disposed of, and to whom? (4) For how much were the Government mineral rights that were leased to the Pacht Gesellschaft in July, 1909, sub-leased by them to the Bergbau? What does the Government derive from these fields to-day in comparison? And (5) for what period were the South-West diamond mines worked after the Union occupation? What was the total caratage of diamonds won? at what price per carat was the output sold? and to whom was the output sold?

The Minister's reply was as follows: (1) The ground, with few exceptions, belongs to the Government. The mining rights belong to the Halberschied Gesellschaft. (2) It was proposed in accordance with an agreement of May, 1910, that half the amount of the shares of the Halberscheid Gesellschaft should belong to the Government. The company was not floated before the War. The minimum capital under the agreement was to be 600,000 marks, the Government's interest. (3) Fisher's Block belonged to the Government, and was leased to the Pachtgesellschaft on July 14, 1909. Permission has been refused by the Administrator to work this property up to the present. (4) About 85 per cent. of the net profits of the Pachtgesellschaft are due to the Government. The mineral rights were sub-leased to the Bergbau for about 10 per cent. of the net profits. The percentages vary owing to certain deductions. No revenue is derived at present, as the fields are not being worked. (5) The Pomona diamond mine was worked from October, 1915; the other eight companies from 1916. The total caratage of diamonds won up to December 31, 1919, was 1,357,108. The output was sold to the London Diamond Syndicate, and the average price per carat so far sold is 18s. 8d.

Functions of H.M. Trade Commissioners.

The President of the Board of Trade has considered it desirable to place formally on record the nature of the work required to be performed by His Majesty's Trade Commissioners in the discharge of their official duties whilst stationed in various parts of the British Empire. The President has accordingly furnished each Trade Commissioner with a formal letter of appointment which describes his functions in the following terms:

> In the discharge of your official duties you will endeavour to establish and maintain cordial relations with the governing authorities in the (Dominion, Colony, or Protectorate, as the case may be) in which you are stationed. While your primary duties will be to ascertain what opportunities exist, and by what means those opportunities can best be utilised, for extending in your area the trade of the United Kingdom, and of those other parts of the Empire which expresses a desire to utilise your services, you will also regard it as your general duty to promote the trade of the British Empire as a whole within the area to which you are appointed. Among the functions of your office it is your duty—(a) To give any assistance you properly can to British traders seeking your services. (b) To study and report upon the Tariff Laws and Customs Regulations, as well as legislation affecting banking, patents and copyrights, shipping, harbours, etc. (c) To watch the imports into the (Dominion, Colony or Protectorate, as the case may be), to furnish reports on the best methods of meeting foreign competition, and to furnish reports on financial and trade conditions. (d) To forward early information as to contracts open, or likely to be open, to tender, the opening of any new industries, and the extension of public works. (e) To make an annual general report on the conditions and prospects of trade in your area, and to supplement it by special reports dealing as exhaustively as possible with particular questions which are likely to be of interest to British firms. (f) To keep an active watch for information as to sources of supply of raw materials which may be opened up in your area, and for other information relating to materials which are likely to be of value to British manufacturers for use in British industries. (g) To furnish information relating to the economic conditions prevailing at important industrial centres, having particular regard to labour disputes, strikes, lock-outs, rates of wages, hours of labour, and cost of living. With a view to the adequate discharge of your duties you will, of course, take any suitable opportunity of visiting the principal commercial centres in your area, and of establishing friendly relations with the commercial community.



Phone 3674. Box 3162.

OSBORN'S

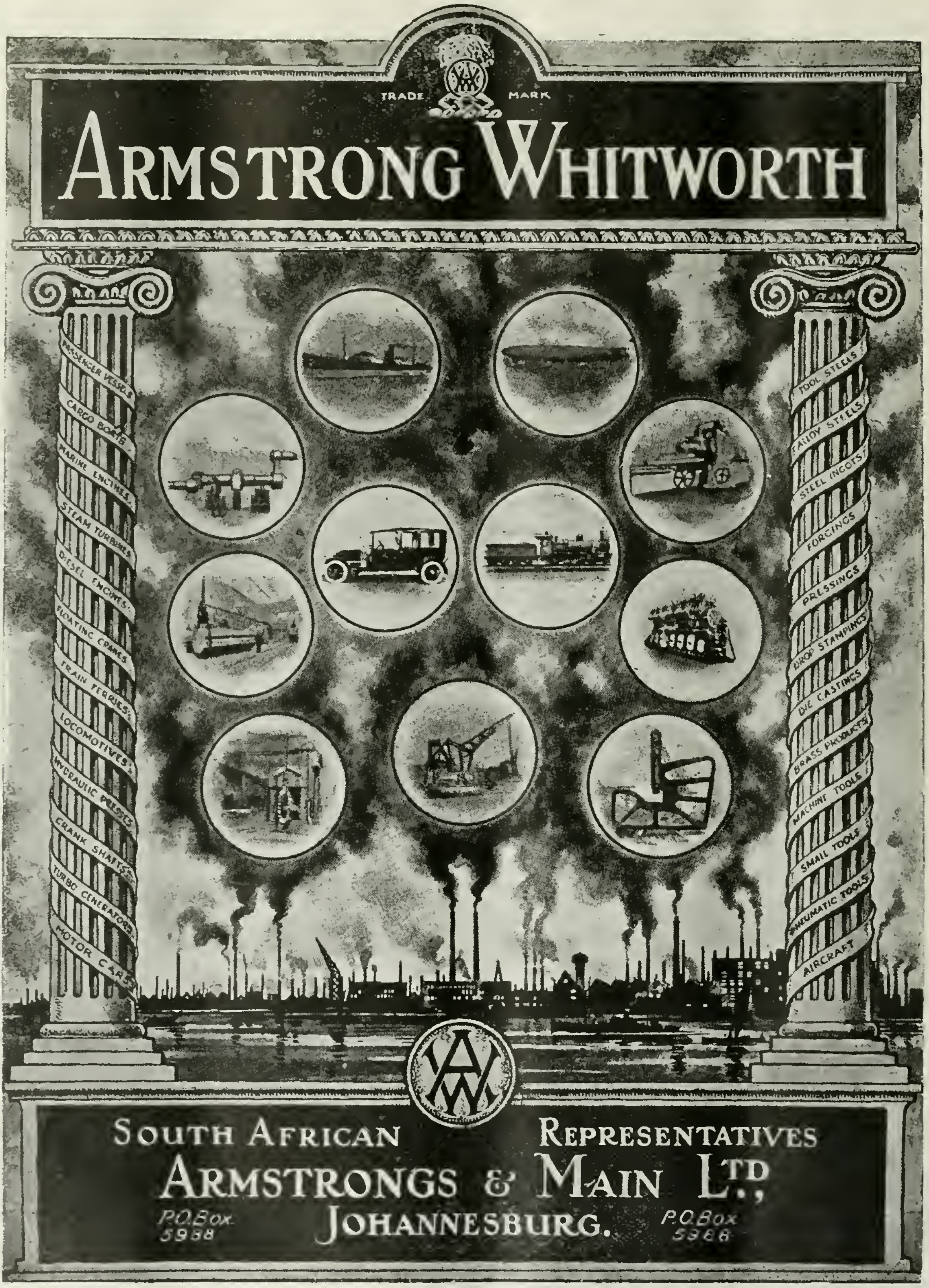
"TITAN" Manganese Castings,

For

Rotary and Jaw Crushers and Mortar Box Liners, etc., and for all parts subjected to severe abrasion.

Samuel Osborn (South Africa), Ltd.,

Sheffield & Johannesburg.



TRADE MARK
ARMSTRONG WHITWORTH

SOUTH AFRICAN REPRESENTATIVES
ARMSTRONGS & MAIN LTD.,
JOHANNESBURG.
P.O. Box 5988
P.O. Box 5988

THE MINING INTERESTS OF THE "T.C.L."

Review of the Year with the Outside Mines of the Company

In the directors' report for the year ended 31st December, 1919, of the Transvaal Consolidated Land and Exploration Co., Ltd., to be submitted at the ordinary general meeting to be held on Wednesday, 16th June, 1920, it is stated that in terms of a circular dated 17th October, 1919, the payment to shareholders of 5s. per share in reduction of capital was commenced from 1st November, 1919. Shareholders who have not yet applied for payment are urged to do so forthwith. The area of the farms amounted to 336,610 acres. The mineral rights have in all cases been reserved to the company. The Swaziland Tin, Ltd., declared dividends of 5 per cent. and 7½ per cent. during the year, and the amount received (£945) has been written off the shareholding. There has been no change in the shareholdings in the Co-operative Exchange Yard, Ltd., and the Fairview (T.C.L.), Ltd. Tributing operations on the Fairview mine have been carried on continuously during the year, but the net return is small. The company acquired a small interest in the Northern Lime Company, Ltd., during the year. The total revenue amounted to £146,294 9s 4d. The profit on township sales amounted to £37,751 5s. 5d. The profit on farm property sold amounted to £36,607 14s. 5d., representing only the portion of profit actually received in cash during the year in respect of the current and previous years' sales. In accordance with previous practice, the balance is retained in suspense until paid. This accounts for the large increase in the item "Sundry Creditors and Amounts in Suspense" shown in the balance sheet. There has been an extraordinarily strong demand during the year for both township stands and farm property, and this demand still continues. Farming operations yielded £4,279 17s., a considerable improvement over the previous year's figures of £1,049 6s. 3d. The increase in administrative expenditure is due to enlarged scope of operations and to the increased cost of living and supplies.

Groenfontein Tin Mine.

The profit for the year amounted to £18,163 4s. 4d. The improvement in the mine referred to in last year's report has been maintained, and at the end of the current year the main tin faces continued to carry average exposures of ore. The balance of the purchase price of the alluvial tin-bearing ground sold to the Zaaiplaats Tin Mining Co., Ltd., last year, has been paid and credited to "Profit on Farm Sales."

Mutue Fides Tin Mines.

This property previously figured under "Mineral Prospects in course of development." The profit for the year amounted to £3,134 19s. 11d. Owing to lack of water it was only possible to run the mill for five months during the year. The opportunity was taken to reorganise the power plant and instal an 80 h.p. gas engine.

Properties Let on Tribute.

This account has taken the place of "Mineral Prospects in course of development," and includes the mining prospects on Weynek No. 763, Rustenburg, the Montrose Claims, Barberton district, and an interest in the Blane-Witkop Zinc Mines. The Mount Morgan Mine and Rietfontein Mine have been included under this heading also. All these properties are now let on tribute. The revenue from royalties during the year was £3,172 18s. 2d., which includes the royalty received from the Asbestos Tribute on the farm Penge No. 780, Lydenburg.

No consulting engineer's report is being issued this year, as Mr. Garrard, the company's engineer, is absent in Europe on leave. During the year the "Increment Value Duty Ordinance, 1919," was brought into force, which provides for the levying of a tax on the profits made on the sale of fixed property on a graduated scale ranging from 5 per cent. up to a maximum of 25 per cent., the amount of duty being subject to a rebate of 2½ per cent. per annum from the date the property was acquired. This tax is levied by the Provincial Council of the Transvaal to provide itself with funds to carry on its administration generally, and by general consent is considered an unfair and discriminating tax. Fortunately, owing to the fact that this company acquired most of its property many years ago, the tax does not affect it seriously.

H.M. Senior Trade Commissioner's Office at Johannesburg.

In spite of the many difficulties which have had to be surmounted since 7th February, 1919, when it was first opened, the office of H.M. Senior Trade Commissioner in South Africa at Johannesburg has already contributed some valuable work in bringing together United Kingdom interests and those of the chief industrial centres of the Union, says the *Board of Trade Journal*. Mr. Wickham himself has not been able to devote as much time as he would like to travelling in various parts of the Union, and the few tours which he had to carry out were cut short on account of the pressure of work in establishing his new office. Johannesburg business men are finding the office of great assistance, and the number of visits to it have increased month by month. Nearly 1,000 personal applications for information were dealt with between February and December, while nearly 1,500 letters were despatched during the same period. Mr. Wickham has also been responsible in this time for the formation of the Aerial Union of the Transvaal to co-operate with the Union Government in supervising commercial flying, and in the formation of the British Manufacturers' Association, on the lines of the Australian Association of British Manufacturers and their Representatives.

CHANGE OF NAME.

OSWALD FLETCHER LTD.
(Late S.C.H. Herbert & Fletcher Ltd.)

AGENTS FOR:—

BRUNTONS'---MUSSELBURGH
WIRE ROPES.

MOSES EADON & SONS LTD.,
SHEFFIELD.

STEEL, TOOLS, ETC.

BOX 2534. 1 & 2 CENTRAL HOUSE.
PHONE 4620. MAIN STREET.

THE LATEST FROM THE "C.M.S." SUBSIDIARIES.

Development of Brakpan, Springs, West Springs and Daggafontein.

The Brakpan directors' quarterly report for the period ended 31st March, 1920, states that the linear development amounted to 4,202 feet, of which 2,870 feet were on reef averaging 8·96 dwts. over a reef width of 38·99 inches. Of the footage on reef, 1,410 feet, equivalent to 49·1 per cent., were in payable areas, and averaged 15·17 dwts. over 39·66 inches. During the quarter a distance of 420 feet was sunk, making the total depth of the No. 3 circular shaft 2,710 feet, of which 2,661 feet are bricked or ringed. In January a reef of the Kimberley series was struck, and on being sampled proved to be unpayable. In March a large dyke was encountered, and has not yet been passed through. During the quarter the No. 4 circular shaft was sunk 485 feet, making the total depth 2,972 feet, of which 2,901 feet are bricked or ringed. The shaft has passed through the Kimberley shales, and is now in quartzite. The capital expenditure incurred during the quarter amounted to £32,736 5s. 1d. Under the agreement in connection with the acquisition of the Brakpan Lease Area, the Consolidated Mines Selection Company, Ltd., took up, during the period under review, 11,000 shares in the unissued capital of the company at £5 per share. The issued capital is, therefore, £834,600, leaving a balance of 15,400 shares to be taken up at £5 per share. The estimated premium on gold recovered during the quarter was calculated as follows: January, 107s. 6d. per fine oz., £23,125 10s. 1d.; February, 110s. per fine oz., £23,768 19s.; March, 105s. per fine oz., £21,016 5s. 5d.—£67,910 14s. 6d.; less reserve for exchange. £9,114 18s. 5d.; total, £58,795 16s. 1d.

The Springs Mines directors' quarterly report for the period ended 31st March, 1920, states that the linear development amounted to 4,562 feet, of which 2,850 feet were on reef averaging 15·20 dwts. over a reef width of 21·50 inches. Of the footage on reef, 1,435 feet, equivalent to 50·35 per cent., were in payable areas, and averaged 19·37 dwts. over 29·22 inches. No. 3 shaft was sunk 506 feet during the quarter, making the total depth 3,140 feet, of which 3,113 feet are timbered. A reef belonging to the Bird Reef series which was passed through proved, on sampling, to be unpayable. The shaft is now in quartzite. At the end of the quarter the south haulage from No. 2 shaft was 480 feet from No. 3 shaft. Work preliminary to sinking of No. 4 shaft has been carried on during the quarter. The collar set has been completed, and a temporary headgear is in course of construction. The expenditure on lease area capital account for the quarter amounted to £39,492 8s. Under the agreement in connection with the acquisition of the lease area, the Consolidated Mines Selection Co., Ltd., took up during the period under review 15,000 shares in the unissued capital of the company at £3 per share to provide further working capital and funds for the redemption and purchase of debentures. The issued capital is therefore £1,211,736. The estimated premium on gold recovered during the quarter was calculated as follows: January. 107s. 6d. per fine oz., £20,472 13s. 2d.; February, 110s. per fine oz., £17,692 2s. 6d.; March, 105s. per fine oz., £17,532 2s. 6d.—£55,696 18s. 2d.; less reserve for exchange, £7,931 10s. 4d.; total, £47,765 7s. 10d.

The West Springs directors' quarterly report for the period ended 31st March, 1920, states that No. 1 shaft was sunk 640 feet, making the total depth at the end of the quarter 1,622 feet, of which 1,598 feet are timbered. The footage sunk during the month of March—244 feet—is believed to constitute a record for a month's sinking in this type of shaft. No. 2 shaft was sunk 438 feet during the quarter, making the total depth 1,029 feet, of which 1,010 feet are timbered. Construction work has proceeded throughout the quarter, and ten workmen's married quarters and the manager's house are now practically completed. A summary of the work so far accomplished by Springs Mines, Ltd., in this company's property, under the working agreement, is as detailed below: Total footage, 1,199; footage on reef, 1,199; footage sampled, 1,185; reef width, 20·22 inches; assay value, 9·01 dwts. During the period under review advance payments of 18s. per share were made in respect of 10,975 shares 2s. paid up, and these shares were issued as fully paid up. The capital of the company now, therefore, stands as follows: 446,507 shares fully paid up; 953,493 shares 2s. per share paid up.

The Daggafontein Mines directors' quarterly report for the period ended 31st March, 1920, states: The details of the quarter's development, together with a summary of the work so far accomplished, are tabulated below: Total footage. 1,426; footage on reef, 493; footage sampled, 485; reef width, 7·97 inches; assay value, 28·51 dwts. Previously reported: Total footage, 7,672; footage on reef, 4,718: footage sampled, 4,540; reef width, 11·79 inches; assay value, 22·82 dwts. Totals and averages: Total footage, 9,098; footage on reef, 5,211; footage sampled, 5,025; reef width, 11·42 inches; assay value, 23·21 dwts. Of the footage sampled during the quarter 43·3 per cent. showed payable assays and averaged 41·95 dwts. over 9·95 inches. A similar analysis of the total development to date showed 46·5 per cent. of payable footage, assaying 29·65 dwts. over 15·63 inches. No. 1 shaft: No. 3 north haulage was advanced beyond the dyke intersected during the previous quarter, and an up-borehole was drilled, which intersected the reef at 180 feet vertical, the sample assaying 2·5 dwts. over 5 inches. A fault was intersected in the No. 3 south haulage at the beginning of March, and the haulage has been advanced in quartzite during the remainder of the quarter. During the latter half of the quarter, the main incline has been in the dyke which was previously intersected in No. 3 haulage north and No. 2 drive north. No. 4 south drive intersected the reef during the quarter, and a reef contour drive was started and driven on payable reef, which assayed, over the 25 feet sampled, 33·6 dwts. over 10·8 inches. No. 2 shaft was sunk 347 feet, making the depth at the end of the quarter 3,316 feet, of which 3,287 feet are timbered. The shaft has been in the amygdaloidal diabase for the last 316 feet. During the period under review, all the quarters under construction for the employees, and the new workshops, offices and store, were completed and occupied.

Novel Overhead Crane.

A new type of overhead crane, specially suited for long spans where rigidity and lightness are important and difficult to obtain with ordinary forms, has been constructed by a British firm of engineers. Instead of the usual double girder, a single V-shaped girder is used. The hoisting ropes hang over the side of the girder, thus giving a higher lift than is possible with the standard arrangement where the hoisting ropes pass between the two girders. Other advantages are claimed for this interesting departure from traditional practice. It has been installed in the firm's own works with satisfactory results, the working load being 5 tons, the span 55 feet, the lifting speed 20 feet per minute, the traversing speed 120 feet per minute, and the main travelling motion 300 feet per minute.

TIMBER.

Tenders are invited for the purchase and removal of approximately 250 Blue Gum Trees, of which 175 over 12 inches diameter, many 18 inches at three feet, as they stand in Selukwe Township. The highest or any tender not necessarily accepted. For further particulars apply Secretary, Village Management Board, Selukwe, Rhodesia.

A CENTRAL RAND PUMPING SCHEME.

Large Installation Projected—Influence of Waning Outcrops on Deep Levels Inundations of the Past Recalled.

In the annual report of the Village Deep just recently issued the company's consulting engineer makes reference to charges incurred in connection with pumping plant during the year and makes the important announcement that a large joint pumping scheme for the Central Rand is under consideration. "Capital expenditure," he writes, "has been heavy for the period under review; the larger items have been incurred in providing additional pumping plant and equipment, detailed in the manager's report. Looking forward to the exhaustion of neighbouring outcrop mines, a central pumping scheme to deal with their water is being considered. The company will have to share in the cost of this plant." For some while past it has been fairly obvious that as the old outcrop mines become idle increased quantities of water will find their way into the properties of companies immediately adjoining them on their dip. This will call for increased pumping plant in the deeper level mines.

Position of the Village Deep.

Few mines are likely to feel the effect of the cessation of pumping in the old ventures nearer surface as much as the Village Deep, which has the old workings of the Salisbury, Jubilee and Wemmer to its north and the declining Village Main, City and Suburban and Ferreira Deep impinging on its boundaries, and a large amount of water to handle through its own shafts. The City and Suburban may be absorbed by the City Deep and this latter company will therefore presumably be responsible for pumping arrangements in the City and Suburban. All the same it is clear that the City Deep, Village Deep, Robinson Deep and other deep-level properties of the central section of the Rand will have to make adequate arrangements to deal with any influx of water which may find its way into their workings through the old outcrop mines which immediately adjoin the town of Johannesburg to the south.

Technical Men Considering a Big Project.

With this object in view, the design, cost, capacity and location of a large Central Rand pumping plant is now receiving attention. We understand, too, that extensive work in connection with underground dams and walls is in progress at several properties in the central section of the fields. The Rand cannot be regarded as one of the most watery of the world's mining fields. But at certain periods in its history heavy floods have drowned out the lower levels of numerous properties and the pumping plants of individual companies have been unable to cope with the influx.

Inundations of the Past.

The mines, as a rule, have only sufficient pumping plant installed to cope with the normal requirements. If an increased inflow is anticipated, additional arrangements are made. Consequently, if an abnormal flood occurs the lower workings of a mine are in danger of being filled more rapidly than the pumps can deal with the water, pumps are lost, the water rises in the workings, preventing access thereto, and the hauling engines and skips have to be used for bailing water instead of hoisting rock, so that routine operations are sometimes brought to a complete standstill. Even when the flow is normal pumps have a habit of wearing out or breaking down, and in times of war or strike it is sometimes impossible to replace an important piece of machinery before the workings become inundated. Such experiences were the lot of several of the mines during 1918, and most unfortunate delays took place from time to time, causing very serious losses. Nearly every mine in the Johannesburg district suffered severely from the heavy rains in February of that year, this abnormal fall coming at a time when many of the mines were already having great difficulty in coping with the water from the previous heavy rains in the latter part of 1917, and so completely overtaxed the existing pumping plants that the lower levels were flooded, and work there was suspended for some time. Those most seriously affected were the Village Deep, Robinson Deep, Crown Mines, and Langlaagte Estate. The position at the Crown Mines South Rand (No. 5) shaft at this time is worth recording. The pumping plant at the main pumping station on the 13th level, consisting of four Sulzer centrifugal pumps, of which two were intended as stand-bys, worked 90 per cent. of full time over a period of four weeks, handling 3,800,000 gallons per day; in addition to this bailing had to be done both by skips and 2,000-gallon bailers, the total volume of water handled per day amounting to 4,460,000 gallons. The New Heriot Mine on the night of 14th-15th February was only saved from disaster by the foresight of the management and control, who had had a reinforced concrete culvert constructed over the outcrop about 18 months before. This culvert was built inside an old culvert resting on the outcrop pillar, 50 feet deep, and was carried on steel ropes extending a considerable distance north and south of the outcrop. When the flood was at its height the outcrop pillar gave way, and part of the old culvert went with it. The new culvert, however, stood intact over the large cavity formed and carried the water. The general disorganisation of the work and the necessity for bailing water had a serious effect upon production on all mines for some time. On the principle that prevention is better than cure, the mines of the Central section are now considering arrangements which should at least minimise if not completely ensure them against serious water difficulties in the future. We hope to publish full details of this new central pumping scheme in an early issue.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Far South-East Rand Geology.

To the Editor of the SOUTH AFRICAN MINING & ENGINEERING JOURNAL.

Sir,—Considering the fearful mistakes and omissions our Government geologists have committed themselves to, I consider your readers have dealt very leniently with them, year after year, but when I see them and the Minister of Mines making a combined attack on my friend, Mr. W. E. Bleloch, who pays thousands a year to the Government for the privilege of differing with them and trying to prove his own contentions, which are partly my own, it raises one's ire, and I consider it most ungrateful of them, to say the least. Further, it is a matter which, in my opinion, the town of Heidelberg should strongly resent, for I can swear, and satisfactorily prove, that the Main Reef series (which they say is the same thing as the Main, Van Ryn and Nigel Reefs ?) runs through its town lands, and Mr. Bleloch's farms also.

It is just as well that the Government geologists have not published their version of the Heidelberg district, or they would have to take a mighty lot back—as, for instance, their childish mistake of taking the well-known Bird Reef series, in that earth fracture, for their pet Kimberley and its supposed shales.

It is common knowledge with independent South African geologists that the Government Survey was started on wrong premises, therefore its conclusions never can be right, hence what public use does it serve? It may be "official," but I consider the public derives much more benefit from your Special Commissioner's unsophisticated commonsense outpourings from time to time than the Government Survey gives in a year at a prohibitive price.—I am, etc.,

SCOTT ALEXANDER,
"Rand Stratigraphist."

British Income Tax: Non-Residents.

To the Editor of the SOUTH AFRICAN MINING & ENGINEERING JOURNAL.

Sir,—There will no doubt be a considerable number of your readers interested to know the recommendations of the Royal Commission on the income tax which have recently been published, in so far as they affect those who come within the term "non-residents," and possibly entitles such persons who have British income to some reduction from the highest rate in force.

According to the present law, no persons who are resident outside the United Kingdom are entitled to any rebate of British income tax unless they can bring themselves within certain well-defined expressions, such as (a) Crown service, (b) ex-Crown service, (c) widows of ex-Crown servants, (d) missionaries, (e) resident abroad for reasons of health, (f) resident in the Isle of Man or the Channel Islands.

The Royal Commissioners have recommended that any relief that would be granted to a British subject resident in the United Kingdom should equally be granted to a British subject resident abroad, and that the relief should be calculater by relation to real total income (including foreign and colonial income), any relief given being in the proportion that the income subject to United Kingdom income tax bears to the total income—that is to say, that portion of the income which is subject to United Kingdom income tax should bear tax at the effective rate that would be charged if the total income (including income not subject to United Kingdom income tax, but computed as far as possible as it would be if it were so subject) were assessable in this country.—Yours faithfully,

W. R. FAIRBROTHER,
Income Tax Specialist.

67-68, Cheapside,
London, E.C.2.

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.

Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record*. In January, February, March, 1920, we secured 13 out of 19 Certificates in S.A.

NEW SURVEY CLASS. HUNDREDS OF SUCCESSES.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

The Logan G.M. Syndicate.

To the Editor of the SOUTH AFRICAN MINING & ENGINEERING JOURNAL.

Sir,—I shall be much obliged if you or any reader of your esteemed journal can give me any information concerning the Logan G.M. Syndicate. I am the holder of two shares of £100 each in this venture, which was highly recommended by Mr. Logan, of Maatjesfontein, who is, presumably, sponsor for the undertaking. On the 25th February last I sent a registered letter to this gentleman with a view to being informed as to the present position of the Syndicate's affairs, but up to the present have received no answer. Possibly there are other readers of the *Mining Journal* interested with me in this matter who will join me in thanking you for the publication of this enquiry.—Yours, etc.,

FRANK SCHELLUBACHER.

Johannesburg.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P O. Box 4047. Telegrams: "THAINE."

THE WEEK IN THE SHAREMARKET.

A Quiet Week—Gold Higher—Diamonds Easier.

DESPITE an advance in the price of gold to 109s. per oz. and a considerable improvement in the native labour situation, the local market shows little strength or activity. The unanimity attained at the San Remo conference has cleared the atmosphere and imparted a somewhat brighter outlook to the position in Europe. Stocks and shares have been steadier in London during the past few days, and Kaffirs have shared in this improvement, but at the same time it cannot be said that there has been any very material recovery in Rand stocks. One is forced to reaffirm the conclusion arrived at by an authority and published in our last issue that, so long as London can sell stocks on Johannesburg and make six per cent. on the turnover by having the proceeds sent home, it is hardly likely that the intrinsic merits of shares are going to receive much consideration. Amongst the big Modder stocks " Deeps " have firmed up substantially, and after being down to 44s. a few days ago and remaining steady at 46s. 6d. have been dealt in at 48s. The commencement of crushing operations at the Apex mi'l by the Modderfontein East appears to have been in some degree instrumental in arresting the rot which has characterised this stock for some months past. On Thursday afternoon, however, the shares were slightly weaker at 24s. 9d. and the debentures were quoted at £125. Transvaal Silver and Base Metals are a good feature with sales of the shares at 53s., and the options keep firm about a sovereign behind this price. There has been little demand for coal stocks recently although the outlook is considered to be distinctly good for a material development of the export and bunkering business in the near future. Natal Navigations have been marked down somewhat of late, but there are persistent and unsatisfied buyers' orders for Glencoes at 5s. 6d. This Natal concern will it is anticipated do much better in the near future. Tins are dull but fairly firm, Thursday afternoon's price for Rooibergs being 10s., whilst Zaaiplaats are quoted at 9s. 2d.—9s. 6d. Diamond stocks have been quiet. Postmas, the sensation of last week, have been slightly lower at about 14s. Roberts Victors have been bid for at 15s. in anticipation of the long-awaited re-opening of the mine. Crowns are slightly steadier at 12s. 3d.—12s. 6d.

	Fri., 23rd.	Sat., 24th.	Mon., 26th.	Tues., 27th	Wed., 28th.	Thurs., 29th.
Anglo-Amer. Corp. ..	38 9	38 9*	37 6*	38 3	39 0*	38 6
Apex Mines...	6 9	—	6 7*	6 7*	—	6 9*
Aurora Wests	—	—	6 3†	5 0†	5 0†	5 0†
Bantjes Cons.	3 0*	3 6†	3 0*	2 9*	3 3†	3 0
Blaauwbosch Dia. ...	—	80 0†	—	—	—	80 0†
Brakpan Mines	54 6*	53 9*	54 6*	55 0*	55 6*	55 6
Breyten Collieries ...	—	—	8 0*	8 0*	8 0*	9 0†
Brick and Potteries	4 6*	4 6*	—	4 6*	4 6*	4 6*
British S. Africa ...	—	—	—	—	—	17 6
Bushveld Tins	1 4*	1 4*	1 4*	1 6*	1 6*	1 6
Cassel Coals	32 6*	32 6*	—	—	—	32 6*
Cinderella Cons. ...	—	—	—	6 3†	6 0†	—
City and Suburbans	6 8*	6 9*	6 9*	7 0	—	6 6*
City Deeps	53 0	52 0*	53 6	—	—	—
Clydesdale Collieries	24 0	—	23 0*	24 0	23 0*	23 0*
Con. Investments ...	—	—	—	26 6*	26 6*	—
Con. Diamonds	37 6*	37 6*	37 6	35 0*	30 0*	—
Con. Langlaagtes ...	19 0*	18 6*	19 0*	19 0*	19 0*	—
Con. Main Reefs ...	11 3*	11 0	11 3*	11 3*	11 0a	11 3*
Con. Mines Selection	—	—	30 0†	28 0*	28 0*	30 0†
Coronation Freeholds	1 4*	1 6	1 6*	1 9†	1 6	1 6
Coronation Syndicates	14 0†	14 0†	14 0†	14 0†	—	13 6†
Crown Diamonds ...	11 9*	12 0	12 6	13 0†	12 3	11 0*
Crown Mines	58 0*	—	60 0*	60 0*	60 0*	60 0*
Daggafontein Mines	15 3*	15 6*	15 6*	15 9*	15 6*	15 4*
Do. Option 4yrs. ...	1 0†	1 0†	0 6*	0 6	0 6*	1 0†
East Rand Coals ...	2 4*	2 3*	2 3*	2 3*	2 3*	2 0
East Rand Deeps ...	1 0†	—	0 10*	—	1 0†	—
East Rand Props ...	7 9*	8 4½	8 6*	8 9*	8 9*	8 6
E.R. Debentures ...	£72*	£72½*	£72½*	—	—	—
Eastern Golds	—	1 0*	—	1 0*	1 0*	1 0*
Ferreira Deeps	—	15 0†	15 0†	—	—	—
Frank Smith Dia. ...	15 0a	14 6*	14 6*	14 6	14 6*	14 6
Geduld Props	44 0	44 0*	44 6*	45 6	45 0*	45 0*
General Mining	—	—	—	7 9†	—	—
Ginsbergs	—	—	—	—	1 0*	1 0*
Glencairns	—	1 0*	1 0*	—	1 1*	1 1
Glencoe Collieries ...	—	—	—	5 6*	—	5 0*
Glynn's Lydenburgs	15 6†	15 0†	—	15 6†	15 6†	15 6†
Government Areas ...	86 6	86 3	87 6	87 0	86 6	86 9
Hume Pipes	27 0†	26 0*	27 0	27 0	—	28 0†
Jhb. Bd. of Executors	36 0*	36 0*	36 0*	37 6*	37 6*	37 6*
Jupiters	4 0*	4 1*	4 0*	4 1*	—	—
Kaalfonteins	0 6*	0 6	0 8†	—	0 6*	0 8†
Klerksdorp Props. ...	2 3*	2 3*	2 3*	2 3*	2 3*	2 3*
Knight Centrals... ...	4 3*	4 3*	4 3*	4 3*	4 3*	4 4*
Lace Props....	11 9*	11 6*	11 0*	11 6*	11 3	10 9*
Leeuwpoort Tins ...	24 0*	24 6	24 9*	24 6*	24 9	25 0*
Lydenburg Farms ...	—	7—1*	7 6	7 6*	7 9*	7 8*
Meyer and Charltons	92 6*	—	92 6*	95 0†	92 6*	—
Middelvlei Est. ...	2 0†	—	1 6*	—	1 6*	1 6*
Modder B.'s	134 0†	130 0*	135 0	137 6	137 0*	135 0
Modder Deep	46 0	47 0a	—	47 6	47 6	47 9
Modder Easts	25 0	24 10½	25 2	25 3	25 1½	24 10½
Do. Options (3yrs) ...	3 11	4 0	4 2	4 0	4 0	2 10*
Do. Options (4yrs) ...	8 11*	8 10*	9 1	9 0	9 1	9 0
Modder Wests	19 6*	19 6*	19 0	19 0	19 0*	19 3*
Natal Navig'tn Colls	24 0*	25 0	25 0	25 0†	23 0*	25 0†
National Banks ...	260 0*	260 0*	—	260 0*	265 0*	265 0*
New Boksburgs ...	2 0†	1 9†	1 9†	1 9†	1 9†	1 9†
New Eland Dia. ...	—	71 0*	70 0*	71 3*	—	70 0*
New Era Cons. ...	9 0	9 0a	9 3*	9 3	9 0	8 6*
New Geduld Deeps	—	2 0*	—	2 0*	2 0*	2 3†
New Heriots...	—	10 0†	—	—	—	—
New Kleinfonteins ...	9 6	9 3	9 4*	9 0a	9 0*	9 3
New Modderfontein	69 0	69 6	70 3*	70 0	70 0	69 9
New Primrose	—	—	—	4 6†	—	4 6†
New States	26 0†	—	27 0*	28 0a	27 3	27 3
New Unifieds	6 6†	—	—	6 0†	—	5 9†
Nigels	6 0*	—	10 0†	10 0†	10 0†	—
Nourse Mines	11 0*	—	11 3*	—	—	11 0*
Pretoria Cements ...	93 6a	93 0*	93 0*	93 0*	93 0*	93 0*
Princess Estates ...	1 0*	—	—	—	—	1 0*
Rand Nucleus	1 6*	1 6	1 6*	1 6*	1 6*	—
Rand Select. Corp.	80 3*	—	—	80 0†	—	80 6*
Randfontein Deeps	—	—	—	—	6 0*	6 0*
Randfontein Est. ...	19 0	18 9	18 9*	19 0*	19 6*	19 0*
Roberts Victors ...	15 6*	15 0*	15 0*	15 0*	14 9a	15 0*
Roodepoort Uniteds	—	4 0†	—	—	—	4 0†
Rouxvilles	21 0	—	20 4	20 3*	20 3*	20 3a
Ryan Nigels	3 3*	3 9†	3 3*	3 3*	3 3*	—
Shebas...	3 0†	3 0†	—	—	3 0†	3 0†
Simmer Deeps	2 6†	—	—	—	—	2 6†
S. A. Alkali	21 0*	22 0	22 0*	22 3*	—	20 0*
S.A. Breweries	—	—	—	36 0†	—	—
S.A. Lands	5 0*	—	5 0*	4 9*	5 0	4 9
S. Van Ryn	8 6	8 6*	8 6*	8 6*	8 6*	8 6*
S.A. Townships	12 6*	12 6*	12 6	12 6*	12 0*	12 0*
Springs Mines	46 3	46 6	46 6	46 6*	46 9	46 6
Swaziland Tins ...	14 0†	14 0†	14 0†	14 0†	14 0†	14 0†
Sub Nigels	15 3	15 0*	15 0*	15 3	15 3	15 3*
Transvaal Silvers ...	50 0a	50 0*	50 0*	51 6	51 6*	52 6*
Transvaal Options	30 0a	31 0*	31 0*	32 6	32 6*	32 0*
Trans. G.M. Est. ...	12 0*	12 6	—	13 0	12 6*	12 6*
Van Dyks	3 9†	—	3 9†	—	3 9†	3 9†
Van Ryn Deeps ...	82 0*	82 6*	86 3	85 6*	85 3*	86 0*
Victory Monarch ...	—	—	—	60 0†	—	60 0†
Village Deeps	13 0†	13 0†	—	11 6*	—	11 0*
Village Main Reefs	—	7 6†	—	—	—	7 6†
West Springs	17 9*	18 0*	18 3*	18 0	17 9	18 0
West Options	3 9*	3 9*	3 9*	4 0†	3 3a	3 6*
Western Rand Est....	5 0	5 0*	5 0*	5 0*	5 3*	—
Witwatersrands	—	—	19 0†	19 0†	—	18 0†
Wit. Deeps	8 0*	8 0*	8 6*	8 3*	8 0*	8 3*
Wolhuters	5 0*	5 3	5 0*	5 3	5 3	5 0*
Zaaiplaats Tins	9 0	9 0	9 4	9 4	9 3	9 2*
Union 5 per cent.	£102*	£102 2 6	£102 2 3*	£102 1 3*	£102†	£101*

*Buyers. †Sellers. aOdd lots. bEx London.

The Price of Gold.

Gold, according to the cables, touched 107s. during the week. The *Statist* of April 3 opines: " Though it cannot be said with certainty how long the premium will continue or what levels it will reach, nevertheless there is good reason for believing that the price of gold will not exceed 120s., and that it is much more likely to oscillate between 100s. and 110s."

Armstrong's Civil Engineering.

To those who have watched the recent operations of the great Armstrong-Whitworth concern in the share markets, it will occasion no surprise to hear that they are preparing to add civil engineering and public works contracting on a large scale to their extensive enterprise. We understand that this civil engineering department has now been formed under control of Mr. Robert H. Mackenzie, and will commence operations immediately. The firm's recent amalgamations place them in the strongest position for undertaking big contracts of this nature in any part of the world. In addition to the great resources of their works at Elswick and Openshaw, they also have the assistance of Messrs. Armstrongs & Main for constructional and general engineering work, and of Messrs. Crompton for electrical equipment. Their recent purchase of Pearson & Knowles shares (with which is involved the share capital of Messrs. Rylands Bros. and the Partington Steel and Iron Company) now places them in control of important supplies of raw materials and completes a combine the organisation of which will enable them to undertake civil engineering contracts of any magnitude. This may be said to be a departure in regard to civil engineering practice which will materially assist in the development and future prosperity of the Armstrong-Whitworth interests.

Old Rails for a Coffer Dam.

A novel method of constructing a coffer dam was employed by a British engineer in India when putting in the foundations for the abutment of a bridge. Piles were formed by joining old 20 feet double-headed rails head to head by iron bands. The lower ends were pointed and the piles driven at 6-feet distances. Mango plants were pushed behind the piles, and when bed-rock was reached, bags filled with clay were used to keep sand and water out of the dam. All the material used in construction was recovered after the work was completed, and the total cost was remarkably low.

German Engineering Industry: Reported Critical Situation.

According to resolutions which have just been adopted at a general meeting of the Association of German Machinery Construction Works, held in Berlin, this industry is confronted with the solution of exceptionally difficult conditions as a result of the development of circumstances during the past 15 months. On the one hand, the makers are severely hit by the increases in the prices of raw and semi-finished materials which they use in the production of machinery, while, on the other, they are frequently bound to execute old orders which were accepted at fixed prices, and which were undertaken in the early period after the revolution. The enormous rise in the prices of materials, combined with the long period required for effecting delivery, has placed the industry in an extremely difficult situation. The Association mentions that the industry, with a turnover of many milliards of marks, finds employment for about 1,000,000 workmen and staff. As a result of the great economic importance of the industry, the makers expect reasonable consideration on the part of the suppliers of raw and semi-finished materials in the matter of future prices, and due judgment on the part of customers in regard to the prices and other conditions of delivery required by the machinery makers. It is considered that the industry, dependent upon syndicates for the delivery of materials for conversion into finished machinery, cannot exist unless supplementary additions are made to the prices fixed in the old contracts and unless reserves are made in the prices for new orders with an extended period of delivery. The Association submits that official circles must also understand these facts. An urgent request has been addressed to the Government asking that the exports of machinery, which have scarcely been resumed, should not be jeopardised by the levying of duties on machinery sent to other countries.—*Financial Times.*

British Electro-Medical Apparatus.

At a recent joint meeting in London of the Institution of Electrical Engineers, the Royal Society of Medicine, and the Rontgen Society, a striking exhibition was given of British-made X-Ray apparatus and other appliances for electro-medical purposes. Co-operation was proposed between radiologists, electrical engineers, and physicists in research work to raise the efficiency of these appliances still higher than it is at present. A leading British engineer has suggested the use of X-Ray outfits for electro-metallurgical research many times more powerful than the strongest yet attempted.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

RHODESIAN SECTION

THE SHABANI ASBESTOS FIELDS.

AN interesting account of the Shabani asbestos fields by Mr. W. H. Fletcher appears in the current issue of the *Bulawayo Chronicle*. In the course of his article Mr. Fletcher states:

This belt of country is situated 131 miles south-east of Bulawayo and some 60 miles south of Selukwe, which latter place is the nearest railway station and the place of shipment of all asbestos from the above area. Large areas of serpentine have been located along stretches of this road, but so far no payable asbestos of any importance has been found in these hills. During the great War all prospecting in Rhodesia practically ceased, but now that peace conditions prevail again a revival of prospecting is to be expected, and more good finds of asbestos may reasonably be looked for in the near future. The surrounding country is generally hilly, the valleys averaging 3,200 feet above sea-level, though some of the hill tops must reach 5,000 feet. The climate, though hot, is not unhealthy. It is amongst these hills that the asbestos area lies, with the Shabani mine on the north-west end, the Nil Desperandum on the south-end, with the Birthday claims between them. The payable area covered by these three mines is two and a half miles in length, the fibre zones, or ore bodies, varying in width from 20 to 200 feet, and dipping with the strata to the south-west apparently to any workable depth. The system of mining is opencast quarry work, and it is in these open quarries that a perfect section of the exposed rocks can be seen to the best advantage; showing the "Talc Schist Contact," or foot wall (the whole deposit being a contact zone) on which lies the Serpentine carrying the payable asbestos fibres. The serpentine varies in colour from red to brown, and green at depth, and interspersed amongst it, in more or less parallel veins, are the seams of asbestos varying from a quarter to three inches in length. The fibres are generally long, flexible, of great tensile strength, and separate easily in the fingers; these seams of asbestos practically follow the strike and dip of the serpentine in which they are enclosed. This chrysolite asbestos (which is the only kind found in the area) whose main chemical constituents are, of the best brands, as follows: 10 per cent. silica, 41-43 per cent. magnesia, 1·2 per cent. each alumina and iron-oxide, 13-14 per cent. water. It is found in practice that asbestos containing much under 10 per cent. of water is brittle and unfit for use. As a rule payable asbestos is not found away from the proximity of the actual contact of the serpentine with the "Talc Schist," the pay zones usually closely following the contact line of strike and dip. The average strike or direction of the contact is N. 30 W., and dip S. 60 W. magnetic. Immediately below the talc at some 150 yards to the N.E. and running parallel to it is a bold outcrop of quartz; this can be traced in the same relative position through the belt for many miles, thus acting as a well-defined pointer to further probable deposits of asbestos. Further N.E. the formation consists of alternate layers of felsites, talc schists, and quartz reef merging into ordinary gold belt formations. On the south side of contact for 5,000 to 6,000 feet the formation is serpentine with occasional intrusive igneous dykes. So far the work done in the various mines goes to prove that the serpentine with its payable fibres goes down on the dip beyond the practical working limit. The central section of this area, which comprises the Birthday claims, situated as it is between these thrusts in the formation, has been bent back in the form of a first curve and contains in its area some 7,900 feet of payable contact zone, out of a total length of some 13,200 feet available. It is most remarkable that beyond each end of these great faults practically no payable asbestos has so far been found. Some three miles to the south of the Shabani area a range of serpentine hills can be traced for more than twenty miles; though good samples have been found, nothing of importance has yet been discovered. The mines of the district are equipped with up-to-date mills for dressing and fibreising the asbestos, and the ore is prepared for the mills by hand cobbing at the quarries. The fibre is usually separated into three grades according to length, quality and colour. The finished product is packed in bags containing about 150 lbs., which are transported by ox wagons to Selukwe station for railage to Beira. Rhodesian fibre is now shipped to Europe, United States of America, Australia, and other countries, and having secured a firm hold of good markets a prosperous future is assured to the industry for many years to come.

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent.

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

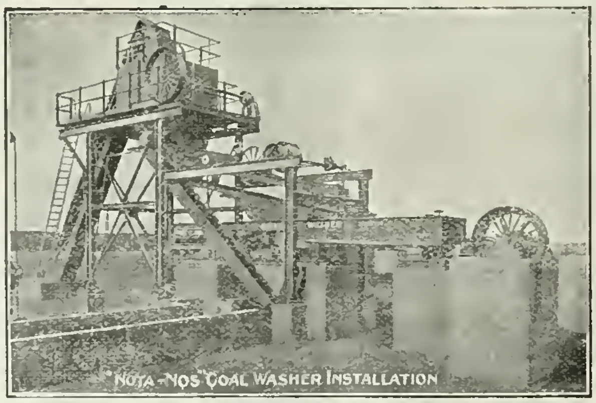
HEAD, WRIGHTSON & Co., Ltd.,
ENGLAND,

Manufacturers of all Classes of

COLLIERY PLANT.

Headgears and Coal Screening Plants.

MAKERS OF
Headgears.
Headgear Sheaves.
Cages.
Kep Gears.
Stephen Humble Safety Hooks.
Friction Driven Tipplers.
Jigging Screens.
Marcus Screens and Conveyors, etc., etc.



MAKERS OF
Plate Picking Belts.
Deflecting Jibs.
Raising & Lowering Gears.
Scraper Conveyers.
Bar Picking Belts.
Elevators.
Creepers.
Rotary Screens.
Band Conveyors, etc., etc.

COAL WASHING PLANTS.

Designs prepared and estimates submitted by

HEAD, WRIGHTSON & CO. (SOUTH AFRICA) LTD.,
47-48, Standard Bank Chambers, Johannesburg.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Business Bad for April—Bank and Financial Men's Talk—Timber and Building Materials—Iron and Steel—Steelplates Acutely Scarce—Second-hand Machinery—Oils and Colours—Dynamite—Natives and Blankets.

Business has been very poor throughout April, owing to our own political affairs as well as European, and the slump in the share-market, chiefly because of the gold premium dropping perilously near £5 per oz. This is the amount mentioned when some sixteen of the poorer grade mines will be in jeopardy of closing down. And the pessimistic talk for a few days in the club where the bank managers and merchants do mostly congregate had a depressing effect, chiefly by the prospects of the Profiteering Bills under discussion at Capetown. Then the bank managers, as usual, returning from their eleven o'clock nip, recommended the unfortunate clients, who were compelled to attend "the bank parlour," to be ever so careful, accompanied by a little homily on the financial situation, to men who already had their hearts in their boots. Well this has altered a little since then, the gold premium is up about 5/- an ounce, and the commercial sky is a little brighter. A Pressman must have a little optimism in his anatomy, and the writer has always been anxious to observe any signs of a reduction in food stuffs, but unfortunately, from expert information, the signs are not hopeful in that respect. The fact is that owing to the recent drought, the Cape is drawing upon our Municipal market to an alarming extent. The tons of potatoes and meat booked for Capetown during a week amounts to a train-load or so, and some of our enterprising salesmen on the market have worked up good business through mail orders. So much so that a postmaster said to a consignor "You must have made a mistake and taken the post office for the railway goods shed." However, in the end the postmaster had to send for extra conveyances to clear the parcels, for all parts, at the penny per lb., S.A.P. rate, which is cheaper than the railway. Again, there is such a big demand from the alluvial diamond fields throughout the Union for foodstuffs, and potatoes are really too dear considering the excellent crop produced by the Transvaal, but the universal demand is the explanation for the high price. Mealies are kept in check by decent supplies coming from Rhodesia and Mozambique. Butter is already scarcer and slightly dearer, as the Autumn is already well on its way. However, oxen and sheep are more plentiful and consequently cheaper, because the farmers are sending cattle and sheep into the market to avoid the risk of feeding them through the winter months, when fodder and feeding are always poor. Instead of burning grass it might be ensilaged.

TIMBER AND BUILDING MATERIALS.

Deals have maintained their price of over 2/- through shortage and the excellent demand from builders, greatly supplemented by the requirements from the manufacturers of doors, windows and all kinds of mouldings and joinery required for building purposes. There are very few doors and windows coming from overeseas as compared with pre-war days and a manufacturer here says that South Africa should be able to make sufficient to keep the imported manufactured wood-work very much in check, if not altogether. The trouble, he remarked, was the white labour, because he had experienced a lot of pin-prick difficulties, not at present over money matters, but of cutting up the various work amongst the trade-unionists as to what was this one's job and which the other man's, which was degenerating from the sublime to the ridiculous. Deals, 2s. 2d. to 2s. 3d.; flooring, 10¼d. to 10½d.; ceilings, 7¼d. to 7½d., Iron is easier at 1s. 6d. to 1s. 6½d. on account of decent shipments having arrived. Business in the building trade shows signs of slackening off, as many new contracts are pigeon-holed for the time being, particularly amongst speculators, who are awaiting the result of the Rent Profiteering Bill. Hardwood timber: American and Japanese oak, 2s.; Indian teak, 30s. to 32s. 6d. per cube; clear pine, 1s. 9d. to 2s.; poplar, 1s. 7d. to 2s.; Yarrah, 15s. 6d. cube.; shelving, 1s 3d. to 1s. 4d.; Vanesta 3 ply satin and walnut, 8d. to 9d.; and ash, 1s. foot. Business and inquiries good, but shipments are very slow in coming forward. Teak has recently been landed at the coast, therefore customers can get what they reasonably require. There is an easier tendency in the supply of bricks on account of the Easter holidays and the Rent Bill obstruction, thus enabling the kilns to catch up old orders. It must also be remembered that we have drawn very much on outside sources from a good many miles round, both by rail and road, thus creating a big impetus to makers. Good stock bricks are 80s. per 1,000, and if one gets a little discount, that is eaten up by the extra cost of cartage, which is not always obtainable. Pressed and wire-cuts are still scarce, and are anything from 90s. to £6 per 1,000. Blue lime has advanced to 1s. 9d. per 160lbs; white unslacked, 8s.; and slacked, 6s. 3d. per 200lbs. Business in the brick and lime trades is still good, but the rush has recently eased off somewhat. Second-hand stocks of both iron and timber are still acutely scarce, and the quantity available is so small as practically not to allow of much, if any, business. Under these circumstances it is impossible to give any quotations.

IRON AND STEEL.

Business is very good from all parts of the country, particularly for the Dunswart and Vereeniging iron and steel products. The Dunswart price is 33s. for iron, and Vereeniging for ordinary mild steel 36s. 6d., and lighter sizes 38s. 6d. per 100lbs. The price of imported is: ¼in. iron and steel, 60s. to 65s. ⅜in. round iron, 42s. 6d.; ditto steel, 50s.; ⅝in. iron and steel, 38s. 6d.; larger sizes, 37s. 6d. up. Mild steel squares over 3in., 50s.; flat ditto, in iron and steel, 5in. and larger, 50s. Steel-plates acutely scarce; there are no sixteenths in town. Values: ⅛in., 65s.; 3-16, 62s.; ¼in., 52s.; ⅜in and heavier, 50s. Cable quotation from England, £50 f.o.b.; also mild and tool steel on up grade. Great demand for small channel iron for making diamond-washing machinery. It is most difficult to obtain channel iron in any part of South Africa, and the British and American makers have turned down the manufacture of the smaller

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7 in.)

COULD PRODUCE

Rounds and Squares (to 6 in.), Channels, Joists, Tees-Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

sizes. Large channels are 47s. 6d. to 55s., but very little offering. Small-sized Tee-iron is eagerly picked up when available. Steel shafting when landed is costing nearly 7d. lb. Last week a cable was sent to Britain to renew certain orders, when a reply came back that the goods mentioned had advanced another 15 per cent. Hence the merchant concerned says that it is impossible to do business under such circumstances. Tool steel, 1s. 3d. lb.; drill, 7½d.; hollow, 10d.; shafting, 7½d. to 8d. Brass rods, 2s. to 2s. 3d., and plates 2s. 6d. lb. Shovels, 70s. to 75s. dozen; they cannot now be landed in Johannesburg under 70s. on order. Wire nails, 50s. to 65s. per 100lbs.

SECOND-HAND MACHINERY.

There is a good demand for large boilers and engines for industrial and agricultural purposes from Delagoa Bay to the Congo. The fact is that the whole of Southern Africa is bare of decent second-hand machinery and mining materials. There is some third-rate stuff, which would go to the scrap-heap in the ordinary way, but this is out of the question to-day, when there is the least chance of its being patched up. This sorting and re-sorting is mostly due to the demand from the alluvial diamond fields out Bloemhof way. When anything above the average is to be picked up, its full retail price is wanted. Tram rails and trucks are exceptionally scarce. The price of 12, 14 and 16 lb. rails is about £25, and the heavier kinds £22½ per ton. Coco-pans are practically unobtainable. There is plenty of business offering if only the goods were available.

OILS AND COLOURS.

It is difficult to get any turps in wholesale quantities even at the extraordinary high rates of 195s. for 2 4's and 210s. for 10 1's. Linseed oil comes a little easier from London. The price here is 125s. for boiled and 117s. 6d. raw for 2 4's. White lead, 97s. 6d., and 1s. 3d. per lb. Calcite, 5s. 6d. packet and 42s. 6d. 8 packets. Rosin, 9d. lb. American salad oil, 145s.; South American, 110s.; and Mozambique, 102s. 6d. 2 4's. Lubricating oil is a little cheaper owing to the American exchange being more favourable. Business in the painting line, more especially the small jobbing work, is quiet, as owners are holding their hands pending the outcome of the Rent Profiteering Bill

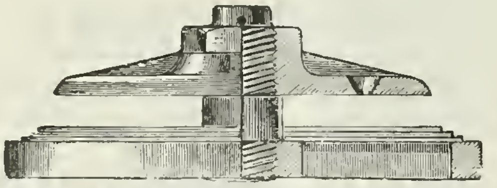
DYNAMITE.

A rise in the price of explosives is foreshadowed by the local factory owing to the extraordinarily high cost of paper now ruling. When it is borne in mind that the price of paper has increased since 1914 anything from 600 to 700 per cent., and that huge quantities of paper are necessarily used for "roughing" cartridges, an enhanced price for dynamite in the near future will not come as much of a surprise.

KINGHORN'S PATENT METALLIC VALVES

FOR

PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.

SOLE SOUTH AFRICAN AGENTS:

GEO. CRADOCK & Co. (S.A.),
LIMITED

75 - 77, CULLINAN BUILDING,
JOHANNESBURG.

Telephone 539. P.O. Box 316.

Telegraphic Add: "ROPES."

HUME PIPE INDUSTRY.

The Hume Pipe Company, in response to a demand for concrete blocks for house and building purposes, are installing a special plant. This plant will be capable of turning out from 1,000 to 2,000 concrete blocks per day, depending on the type of block ordered. A type of block new to this country is being introduced. This block, which is made in the form of a T, ensures the continuous cavity between external and internal walls of the building, and secures absolute dryness In addition to making concrete blocks, special machinery is being imported for making pavement tiles and ornamental and plain tiles of all descriptions. Verandah pillars with ornamental caps and bases are being manufactured to meet architects' requirements; in fact, a new site has been taken adjoining the present one with a view to using material for the manufacture of special articles as mentioned above. In pipe-making the factory is fully booked up at present, and they have ordered locally a plant capable of doubling the present output.

SUPPLYING NATIVES WITH BLANKETS.

A start has been made in supplying natives with blankets and other warm essentials for the winter months. In an interview with a compound manager it was ascertained that boots only are supplied on credit, as blankets and other things have to be paid for in cash. The whole position starts from the War period, because before then the natives were fairly well contented. About the second year of the War prices began to rise and rise, therefore extra charges had to be made, which the native could not understand. It is not easy to explain the rise of prices even to white men, and it is almost impossible to do so to the native, hence the trouble between them and the storekeepers Both sides are, no doubt, to blame, but, as previously remarked, the terrible War was the whole trouble. The strike of the natives brought the matter to a serious climax, and something had to be done, either in the shape of money or kind, to keep the boys working—and that, after all, is the crux of the whole position. More and more natives is the cry from the farther north, and so on. Also, a letter dated April 22nd from Diamondkuil says: "We are progressing but slowly, on account of the shortage of native labour, and I shall probably journey to Johannesburg shortly in search of a further supply, as boys are practically unobtainable here." This is the position facing not only the gold mining, but other mining work and the whole country's industries, and it is not a thing of yesterday. The Chamber of Mines must have very seriously recognised the great responsibility when they discuss the question to interfere in any way with the traders on the Reef, the latter are not the men to take things lying down when they see, maybe in their exaggerated ideas, prospects of losses. The Chamber, knowing that any interference in trading would bring a veritable hornet's nest into play from one to end of the Witwatersrand, had to take their courage in both hands and do what they thought best for the great industry, which is admitted to be the baking powder to the South African loaf. In all fairness, many of the Reef traders can be commiserated with, but unfortunately there is more serious business abroad than mere sentiment.

Automatic Sub-Stations.

Mr. John Lister's annual summary of developments in the electrical industry in the January issue of the *General Electric Review*, is always instructive and interesting. This year he has more to tell than ever before. On the subject of automatic generating and distributing stations, Mr. Lister says that the continued popularity of the automatic sub-station is shown in the increased orders for various types and sizes up to 2,000 K.W., and 1,500 volts direct current. The largest set so far constructed is a 2,000 K.W. synchronous motor-generator now being installed to supplement the power supply to the Michigan Central R.R. operating electric locomotives through the Detroit River tunnel. Automatic sub-station equipment was sold in Cuba, Australia and New Zealand, and inquiries were received from other foreign countries. At the end of 1919 there were approximately 50 G.E. equipments in operation, and about 20 more being constructed or installed. The success of the automatic generating station at Cedar Rapids, Iowa, and the many railway sub-stations in service has encouraged development of others on automatic lines. An automatic hydro-electric generating station was developed for the Blue River Power Co. at Seward, Neb. This plant consists of a 240 K.V.A., 120 R.P.M., 60-cycle, 2,400-volt, water-wheel-driven generator, and three 80 K.V.A., 24,000/2,400-volt transformers, and is the first of several stations to be installed on this system. A second installation is for the Ontario Power Co., at Ontario, Cal., which consists of one 500 K.V.A., 60-cycle generator direct-connected to a Pelton water wheel. This station is not entirely automatic, but is controlled by pilot wires from a manually-operated station on the same stream. In case of necessity the station will shut down automatically. An automatic distribution station was developed for the Malden Electric Co. at Malden, Mass., and comprises a 3,000 K.V.A. transformer plant fed by a 22,000 volt line, with a second as a spare. It feeds three three-phase feeder circuits, and three single-phase feeder circuits which are controlled by automatic oil circuit-breakers with a "notching" relay This relay will close a circuit breaker if it is tripped, and reclose it if it trips a second time within a brief period. If the short circuit has not cleared itself by this time, the circuit breaker trips a third time, and the circuit remains open until cleared and the switch closed by an operator.

COLLIERY NOTES AND NEWS.

Natal Cambrian Collieries—Kendal Colliery, A Correction—The Union's Coal Mines in January.

The directors' annual report presented to shareholders of the Natal Cambrian Collieries, Ltd., at the fifteenth ordinary general meeting held at Durban, on Friday, 27th February, 1920, states:

The Net Profit for the year, after writing off £526 8s 9d for depreciation amounted to £390 5s. 8d., which, with the amount of £1,987 3s. 0d., brought forward from 1918, makes a total of £2,377 8s. 8d. This is dealt with by providing £108 18s. 0d. for balance of Income Tax, payable for the years of 1917 and 1918 and carrying forward the sum of £2,268 10 2 to next year's accounts. The output throughout the year was very unsatisfactory. The causes of this were the very inadequate supply of trucks, chiefly due to lack of engine power, and the decline in the demand for coal. A very large share of our business was with the Admiralty, but after the 31st March the steamers employed as transports reverted to the original owners and the Admiralty relinquished control at the port, the sudden change causing the business of certain collieries to be increased while that of others decreased. The Cambrian Colliery was one of those adversely affected by the change. Other causes contributed to the falling off in the demand Steamers were withdrawn from the Indian and Australian routes owing to the high freights obtainable for shorter voyages elsewhere, and increased use was made of the Suez and Panama canals, so that fewer steamers called here for bunkers Export shipments fell off, the high freights making it very difficult to secure steamers for coal cargoes. We also lost a good deal of business in the latter part of the year through steamers being held up at Home ports by the Railway Strike in Great Britain. The competition of new collieries has also been a serious factor, for while the total volume of business has not been increased, it has had to be shared amongst more collieries. The inadequate supply of trucks has frequently caused direct loss of business, orders having to be refused on that account. The mine was idle chiefly from want of trucks, 44 days and 1,184 hours. This state of affairs has greatly increased working costs, disorganised the labour, and reduced the profit. The dam built last year has proved a great asset, providing a plentiful supply of water for the mine as well as abundnace for domestic purposes notwithstanding the severe drought experienced during the year. A brick reservoir, with two filter beds, was erected during the year under review, into which water is pumped from the Dam, and, after filtration runs by gravitation to all the dwelling houses and compounds, thus providing an excellent supply of drinking water. The Longwall system introduced the previous year in a portion of the mine has proved a great success. This system has reduced the cost of mining as well as increasing the size of the coal mined. The Manager took advantage of the large number of idle days to improve and develop the mine underground, and particular attention was given to the Dundee Section, with the happy and fortunate result that we have reached a very large body of excellent coal, the top seam and bottom seam being 6ft. 6in. and 5ft. 6in. respectively. Negotiations have been proceeding for some time for the sale of the entire output for the year 1920, but, owing to the present difficulties in chartering boats and securing suitable freight, are not yet completed.

* * * *

We regret that an error crept into the article on the Kendal Colliery appearing in the Special Coal Number of this journal. We therein conveyed the impression that Mr. R. G. Voss was Managing Director of this Company. We are now informed that Mr. Stewart Fleming is the Company's Managing Director.

The coal output of the Union for January was 834,419 tons of a value of £294,853, as compared with 852,488 tons, of a value of £291,522 in the previous month. It will thus be seen that although the output was less the selling price at pit's mouth was higher. Natal coal rose about 6½d. per ton during the month; O.F.S. coal went up 1d., and Transvaal 3d. per ton during the month.

TWO WINNERS

DANIEL'S "SPECIAL P.P.P." PACKING

in all sizes from ½ in. to 1½ in.

"RAINBOW" STEAM SHEET PACKING

$\frac{1}{32}$ in., $\frac{1}{16}$ in., ⅛ in., ¼ in. thick.

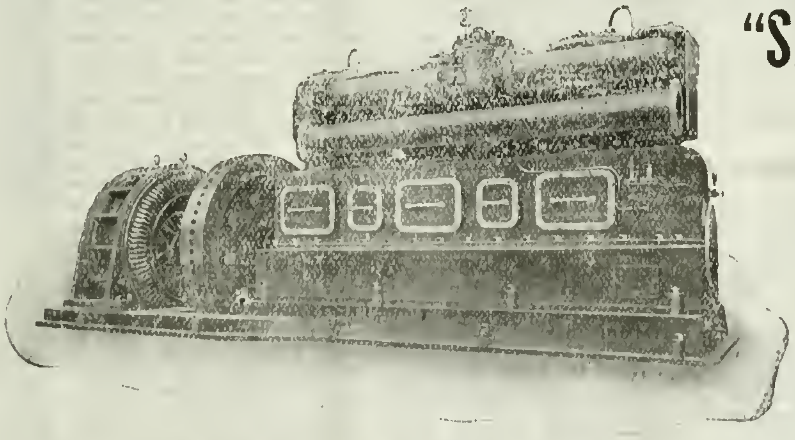
CHEAPEST IN THE END.

SOLE AGENTS:

National Trading Co.,

53/56, CULLINAN BUILDINGS,
JOHANNESBURG.

Box 2762. Telegrams: "GLORIA." 'Phones 1205 & 1250



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessability, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

The Week's Meetings.

SIMMER DEEP.

A very serious note was sounded by Mr. Douglas Christopherson, C.B.E., last week, when he reviewed the position of the Simmer Deep, Ltd., for the benefit of the shareholders of that company in annual meeting. Many of his remarks were applicable to the industry generally, and emphasise the seriousness of the position. After briefly reviewing the history of the company since it started milling ore twelve years ago and describing the assistance rendered by the New Consolidated Gold Fields in the matter of debentures, Mr. Christopherson said that owing to unavoidable causes, mainly to further depletion of native labour, largely due to the influenza epidemic, the financial position of the company had become critical. Low area mining was tried, but "in spite of all these efforts the position is more critical than has ever been the case before." As to the reasons for that, though the yield of gold had (excluding any allowance for gold premium) slightly improved working costs had largely increased—from 16s. 5d. a ton in 1916 to 23s. 8d. in 1919. Costs have gone up principally on account of four causes—namely, (a) increased cost of labour and stores; (b) more difficult conditions under which the mine is now being worked; (c) reduced efficiency of labour; (d) increased assessment in respect of phthisis compensation.

The Chairman then gave figures to show that, comparing March, 1914, with March, 1920, the increased costs in respect of white wages, stores, and miners' phthisis charges amounted to £156,549. Thus while in March, 1914, there were employed 461 white men of whom 457 were at work, in 1920 there were employed 466, of whom 434 were at work. The wages paid were £11,587 in 1914 and £18,300, an increase of £80,556 per annum, while stores which in March, 1914, cost £15,893, cost in March, 1920, £21,416, an increase at the rate of £66,276 yearly. In addition, the phthisis compensation amounted to an additional charge of £9,717 yearly. "Thus," continued Mr. Christopherson, "the total increase in respect of these three items alone is equal to a monthly profit of £13,046, or more than sufficient to cover all charges on the 1st and 2nd debentures, and leave a margin to cover the cost of further shaft-sinking and development. In addition to the above, the native employe's wages have been increased."

Decreased Efficiency.

Dealing with efficiency the Chairman gave figures showing a marked falling off as compared with 1914. In November, 1914, there were employed 457 white men (454 being at work), and the tons crushed were 53,700. The number of natives at work was 3,949, and the tons crushed per white man were 118.3 and per native 13.6. In November of 1919 there were employed 478 white men (449 being at work) and the tons crushed were 45,800. The number of natives at work was 3,653, and the tons crushed per white were 102, and per native 12.5.

"The month of November," said the Chairman, "has been taken for comparative purposes, as from December onwards there have been special causes to tell against efficiency figures, such as the strike in December and the burning down of the crusher station in March. These figures, even after making an allowance for less reclamation rock being mined, clearly indicate that better pay has not resulted in better efficiency.

The ore reserve position does not offer any offset as against the above. It is true the value of the 836,000 tons fully developed reserve shows an improvement of nearly .1 dwt. as compared with the end of 1918, whilst the tonnage is somewhat less, due to certain blocks remotely situated and of low value being eliminated. Careful analysis of these reserves indicates that a yield of more than 20s. per ton cannot be expected, that is taking gold at 85s. per fine ounce. Working costs for January and February averaged 22s. 8d., and March 27s. 3d. (March was abnormally high, due to the fire at the crusher station.) Thus, under present working conditions, no profit could be made with gold at 85s. With bank charges as they are to-day, and taking gold at 110s. per fine ounce (or, say, practically 30 per cent. premium), the indicated yield of 20s. per ton, as quoted above, would come up to 24s. 4d., against which our engineers and manager advise that under present conditions of working the costs cannot come below 25s.; thus a profit cannot even be expected with gold at that price, whereas the last price I have heard for gold is 105s. per oz.

Selective Mining Useless.

Mr. D. Wilkinson, consulting engineer to the New Consolidated Gold Fields, with the assistance of Mr. Powell, the acting consulting engineer of the company, have been going very closely into the question as to whether the mine can be worked at a profit if only the richer portions of the reserves are mined. After a close analysis of the ore reserve blocks Mr. D. Wilkinson finds only 20 per cent. of the total contains 6 dwts. and over, or a tonnage of 172,000 having an assay value of 6.2 dwts. He points out it would be impossible to stope 20,000 tons per month of this tonnage, owing to the few faces available, the tonnage being contained in only 21 blocks. Moreover, the cost per ton would increase so rapidly on such a small tonnage as to preclude any hope of making a profit. In other words, in the opinion of Mr. Wilkinson and Mr. Powell, the best blocks of the reserves have not a sufficiently high value to justify such selective mining, because the slightly higher value would be more than neutralised by the increase in the cost per ton.

The total loss for the year under review amounted to £46,000, and that is after allowing for a sum of £57,600, representing the amount received and estimated to be due in respect of the premium on gold won during the year. In March the loss was £9,572 (this loss was accentuated on account of the fire) which, after allowing for gold realisation charges, will be £12,390, and this is after taking the sale price of gold at £5 5s., which is higher than gold has recently realised.

Government's Attitude.

The Government apparently are awaiting the final report of the Low Grade Mines Commission before coming to any decision as to whether anything can be done to save the position of the low grade mines. This report is long overdue. The premium of gold probably has lulled the Government and the Commission into a false sense of security. It is perhaps somewhat of a pity that the Government did not press for this report so as to be in a position to deal with the matter should the gold premium fall to such an extent as to be of little or no value to the low grade mines—which is the case to-day. Up till the present the Government, through its railways, has only added to the burdens of the gold mining industry in that the following extra charges have been imposed:—Terminal additions brought into force, 11th May, 1918; 10 per cent. surcharge, brought into force 1st January, 1919; surcharge increase to 25 per cent., brought into force 4th November, 1919; surcharge increase to 33 1-3rd per cent., brought into force 22nd April, 1920. As compared with previous to the 11th May, 1918, these additional charges are estimated to cost the Simmer Deep and Jupiter (I put them together on account of the joint plant, and their mutual working arrangements), £9,500 per annum, whilst to our group of mines (which represents only a small portion of the gold mining industry) the additional cost is estimated at £37,000 per annum.

In view of the facts which I have put before you to-day, I think you will admit that my opening statement that the mine is in a more critical position to-day than at any time since milling commenced is justified. Every effort has been made, both financially and technically, to assure the position of the compnay, but circumstances entirely beyond the control of those responsible for the working of the mine have more than counterbalanced these efforts. Had it not been for these untoward circumstances, and allowing for material improvement in the terms of employment of our employes as compared with pre-war terms, the company to-day would have been paying its way, and the question of closing down would not have been a matter for consideration for many years to come. In the meantime careful consideration is being given to possible ways and means whereby operations can continue to be carried on, but in any event it appears certain that whatever ways and means are found it will necessitate the co-operation of the employees."

WITWATERSRAND NATIVE LABOUR ASSOCIATION.

"I do not propose to deal with the recent native strike from a general point of view," said Mr. H. O. Buckle, the president of of the W.N.L.A. at the annual meeting of the Association this week, "but there is one aspect thereof which I think should be particularly brought to the notice of members of the Association. It has been the tradition on these fields that large numbers of natives can be sufficiently controlled by a single compound maanger, or, when the number involved amounts to thousands, by the addition of one or two assistants. In the main that tradition has justified itself in the past: the native has shown himself to be singularly docile. But, now that it has become evident that every compound is a potential centre of a fully organised strike I think we shall be compelled to take up a different attitude. It seems to me that more assistance must be provided to enable the compound managers to exercise that increased watchfulness and control now necessary, and that the practice, which I am informed obtains upon some mines, of leaving the compound without European supervision during the night, and sometimes over the whole or the greater part of the week-end, should no longer continue. I may mention that the Director of Native Labour has brought to my notice that recent searches have revealed concealed weapons—knives, hatchets, etc.—of patterns hitherto unknown, and of a particularly lethal character. I think that the systematic searching of compounds for such instruments should be carried out on every mine with the frequency and thoroughness which is already the rule in many compounds."

RECRUITING STATISTICS.

The number of East Coast natives recruited, he said, was 42,618, a considerable improvement upon the numbers obtained during 1918. That was not in itself a matter for much congratulation, since 1918 was, owing to the influenza epidemic, one of the worst years the Association had. But the figure was better by 1,165 than the total of 1917; and, considering that, owing to the aftermath of the influenza, operations were entirely suspended during January and February, and only partially resumed in March, he thought this result might be considered very satisfactory, and much in advance of what might have been expected at the beginning of the year. There had been a falling off in the number of East Coast voluntaries from 9,874 in 1918 to 7,235 in 1919. Fortunately this had been more than compensated by an increase in voluntary engagements among British South African natives, the total number of voluntaries obtained during 1910 being 70,783, a number which not only exceeded that of 1918 by nearly 6,000, but constituted a record. The steady increase in the number of natives coming forward voluntarily had been one of the most satisfactory features of the report during recent years. It was also satisfactory to observe that the percentage of the total native labour complement, which had been dropping for the previous three years, appeared to have taken a turn for the better, the percentage last December being 67.97 as against 62.17 twelve months earlier. Since the beginning of the current year the position had been further improved, the gain up to April 22 being over 20,000. During this period the number obtained from the East Coast had been 22,717, as against about 10,476 in the corresponding period of 1919; but, as he had stated, recruiting was suspended during practically the whole of the first quarter of 1919. The proportion of recruits who had previously worked on the mines was 71 per cent., as against 75 per cent. of those recruited in 1918.

HEALTH OF THE NATIVES.

The health of natives recruited by the Association had been satisfactory. Among other indications of this, attention might be directed to the fact that the percentage of natives rejected as unfit before allotment had fallen from 6.95 to 2.52, and the number of natives detained for recuperative purposes from 7,893 to 4,403.

Mr. Buckle then referred to arrangements in contemplation under which natives rejected for underground work but passed for surface work would be reexamined after an interval, with a view to seeing whether their health had improved sufficiently to allow them to go underground. He said a certain addition to the underground force was expected from this source. The number of natives who received compensation for silicosis or tuberculosis increased from 2,786 in 1918 to 3,814. Even allowing for the increased number passing through the mines in 1919 and for the additional (anteprimary) stage of silicosis introduced by the new Miners' Phthisis Act, this indicated either greater prevalence of these diseases or greater care in searching for cases. His information was to the effect that the latter was the probable explanation. The amount paid in compensation had risen from £55,710 to £88,176. This was largely due to the more liberal scale of compensation provided by the new Act, and it must be admitted that the compensation payable to natives under the former law was in some cases inadequate.

LOW GRADE MINES REPORT.

He expressed the hope that the labours of the Low Grade Mines Commission might not be wasted owing, as so often happened with similar commissions, to the Government taking no steps to put their report into effect.

The balance of revenue over expenditure for the year was £15,973 10s. 11d. This had been applied, as in the previous year, to writing down assets. Looked at purely from the point of view of depreciation, the amount was perhaps excessive, but even if only the necessary depreciation had been written off the amount remaining would be too small to make it worth while to distribute a refund. Next year, in all probability, there would be a substantial balance, the whole of which would be available for distribution. The increase in recruiting costs from 3.41d. to 3.63d. per recruited shift was, of course, due to the increased cost of supplies. For example, the amount charged by the Association to the native for his outfit on longer covered the cost thereof; but, in the present state of native unrest, it was thought unwise to make any increase in this item. Similarly, the repatriation charges showed a deficit which, for the present at any rate, it was probably wise for the Association to bear. In neither case was the amount involved very serious.

Lighting Conditions in Mines.

In a paper on lighting ocnditions in mines, with a special reference to the eyesight of miners, read by Dr. T. Lister Llewellyn before the illuminating Engineering Society, on February 24th, the subject of occurrence of miner's nystagmus was considered. Dr. Llewellyn condemned the miner's oil lamp as extremely inefficient; the lighting at the working face is not only bad, but it also falls off seriously towards the end of the shift, and figures show that such poor illumination very seriously affects the miners' eyesight. Oil lamps, when tested, showed a power of 0·50 Hefner unit at the beginning of the shift, deteriorating to 0·28 at the end, compared with electric lamps showing 1·75 units to 2 units at the start, and 1·5 units to 1·75 units at the end. Acetylene lamps showed no deterioration. The effect of this on eyesight is reflected in the following statistics. With oil lamps the number of grave cases of nystagmus per 10,000 was 35, and of serious cases 57. The number of cases as a percentage of the workers on day shift was 31. This percentage was reduced in the case of electric lamps to 15·4, of which the grave cases were only 8 per 10,000. Evidence showed that the introduction of the electric lamp had enabled scores of miners to continue at work underground. In two similar pits, after electric lamps had been introduced into one of them the cases of nystagmus had been greatly reduced in the pit which had adopted electric lamps of 0·62 c.p., compared with oil lamps of 0·25 c.p., These lamps gave respectively 0·023 ft.-candle and 0·015 ft.-candle at the face. The men with electric lamps turned out 5 per cent. more than those with oil lamps, while the shifts lost from accident were 1 in 54 with the electric lamps against 1 in 23 for the oil lamps. The cost of an oil lamp was put at 3½d. per week, while the electric lamp was said to cost ½d. or 1d. more, though figures were given claiming it to be actually cheaper at some collieries. The electric lamp was more expensive as regarded first cost. In a contribution to the discussion, Mr. Elworthy pointed out that it was the light reflected from the coal face which affected the miner. To give relief it had been suggested to colourwash the roof, &c., and where this had been experimentally attempted considerable relief had been experienced.

The Latest Engineering Specialist.

A new class of engineering specialist has arisen in Great Britain. Hitherto it has been the custom for manufacturing firms to employ their own inventors and designers to produce the machinery required in the processes of manufacture. In the days when manual labour was both plentiful and cheap, this arrangement worked fairly well, as the use of machinery was generally confined to the more obvious steps and was freely supplemented by manual skill. But nowadays it is economically urgent that machinery should do more and more of the work, so that the demands made upon designers are much heavier than formerly. To meet this situation a large British firm with long experience in the design and construction of elaborate tools for accurate work of the most varied description now offers to carry through the whole business of tool-making for firms which are going into the manufacture of certain articles. If, for example, the firm decides to take up a new form of safety-razor, or carburettor, or any such appliance, it goes to this specialist firm and asks it to provide a machine or machines which will turn out the necessary quantities at the lowest cost.

New British Internal Combustion Locomotives.

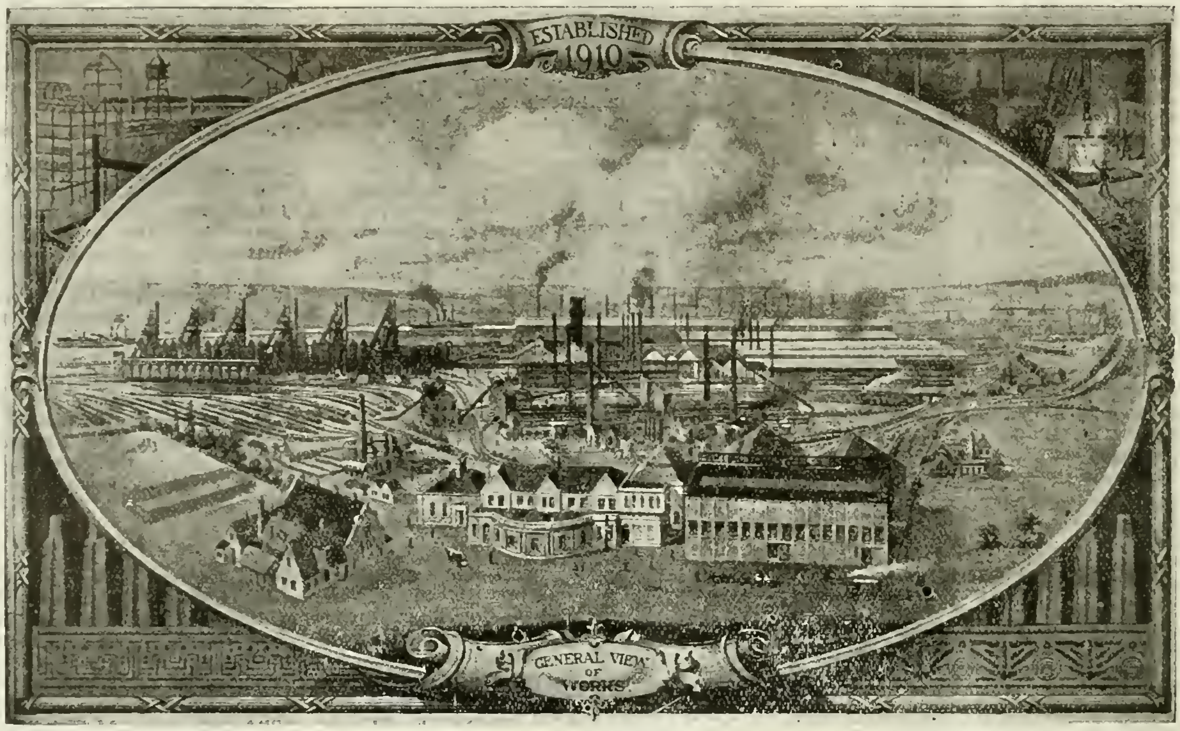
Internal-combustion engine locomotives have many advantages over steam locomotives for long distance railways in countries where water and coal are scarce. They possess the drawback, however, that their efficiency is notably reduced at high altitudes, owing to the lower density of the atmosphere and the consequent difficulty of getting a full charge of air into the cylinder. A British engineer has got over this obstacle by designing an internal-combustion engine whose efficiency is not affected by altitude. It has the further advantage that the exhaust is practically silent. A locomotive with this type of engine and electric transmission gear is now being constructed. Clearly enough, the same engine has striking advantages for aeroplane work.

Mineral Lease Agreements.

In the House of Assembly this week Dr. Visser moved: "That all mineral lease agreements entered into under the provisions of Act No. 35 of 1908 (Transvaal) and Act No. 30 of 1918, between the Government and the Springs Mines, Ltd., Modderfontein Estate, Ltd., Brakpan Mines, Ltd., Government Gold Mining Areas (Modderfontein) Consolidated, Ltd., and West Springs, Ltd., be laid on the table." He severely condemned the action of the Government for selling the assets of the country to "cosmopolitan foreign capitalists." The Minister of Mines having pointed out, amid laughter, that the documents referred to were laid before the House some time ago, the motion fell away, and the House adjourned.

PARTINGTON STEEL AND IRON CO., LTD.,

Works: IRLAM, MANCHESTER.



MAKERS OF ALL SPECIAL STEELS.

FORGING INGOTS, SLABS, BILLETS, BLOOMS, BARS. FLATS AND ROUNDS, RAILS, JOISTS, CHANNELS, BULBS, TEES, ANGLES AND ZED BARS.

Specialities :—

Tube Steel, Alloy Steels, Partington Special Non-Corrode and Steel Castings.

Sole Representatives for South Africa:

HARRISS, MILLER & CO. (S.A.) LTD.

Engineers, Cullinan Buildings, JOHANNESBURG.
P.O. Box 5867. **Tel. Add.: "HARMILCO."** **Telephone 4563.**
Also at DURBAN, CAPE TOWN, SALISBURY, BULAWAYO.

Sole South African Representatives of:

PARTINGTON STEEL & IRON Co., Ltd., Irlam, Manchester,
Steel Manufacturers.
RYLANDS BROS., Ltd., Warrington,
Wire Ropes, etc.
HICK, HARGREAVES & Co., Bolton,
Steam Engines, Condensers, Semi-Diessel Engines, etc.
B. & S. MASSEY, Ltd., Manchester,
Steam and Pneumatic Hammers.
BRITISH ELECTRIC PLANT Co., Alloa, Scotland,
High Power Centrifugal Pumps, Electrical Supplies.
JAMES GORDON & Co., London,
Superheaters, Hydraulic Machinery.

HYDRAULIC GEARS, Ltd., London,
Variable Capacity Pumps on Hele-Shaw System.
F. W. ROWLANDS & Co., Birkenhead,
Gearing Specialists; Tramway Gears, etc.
ALLEN & HARRISON, Manchester,
Steam Fittings, "Cantaba" A.F. Metals.
UNITED INDIGO & CHEMICAL Co., Ltd., Manchester,
"Algaloid" Boiler Disincrustant, Highly Concentrated in solid form.
UNION ACID Co., Ltd., Manchester,
Chelly Pure Acids, Salts, etc.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] MAY 8, 1920. [No. 1493.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: "**MINING JOURNAL.**"

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 225
Topics of the Week:
State Revenue and What the Mines Pay 227
Rand Gold Mining Results in 1920 229
A Further Batch of Quarterly Reports 233
The Union's Coal Trade in March 237
Emerald Diamonds, Ltd. 239
The Week in the Sharemarket 245
The Atlantic Flight: Sir Arthur Brown's Visit 246
Trades and Industries Section:
The Week in the Mining Material and Engineering Trades 247
Correspondence and Discussion: "King George's Fund for Sailors" 250

Notes and News.

Fatigue!

From the *Journal of Industries*, issued by the Union Government: "Arrangements have been made for investigating the question of industrial fatigue on the gold mines of the Witwatersrand, and experiments were commenced on the 1st January, 1920." This is the sort of thing that makes us tired.

* * * *

A Stamp Duty of 26 Tons.

A few years ago a stamp duty of 25 tons per day was undreamt of, but it is interesting to note that last year the Modderfontein Government Areas obtained a duty per stamp of nearly 26 tons throughout 1919. The actual figure was 25·96 tons. The Modder Deep comes second on the duty list with 24·1 tons.

* * * *

African Oils.

It is announced that the African Oil Corporation, Ltd., propose to increase the capital of the company by an amount not exceeding £400,000 to be divided into shares of 10s. each. For this purpose an extraordinary resolution will be moved at a special general meeting of the company to be held on Friday, May 14th. We understand that recent development work has disclosed satisfactory results and that the proposition has recently been inspected again by an independent engineer.

* * * *

Stienies Diamonds.

The Stienies Diamond Syndicate has to date recovered an average of 38 carats per 100 loads from ground washed on the farm Retreat, in the Theunissen district of the Orange Free State. The diamonds recovered have been of exceptional purity and the last parcel yielded was valued at £15 per carat. The fissure on Retreat is broadening in depth, and the other day a magnificent 9¼ carat diamond was recovered from the Driekkopjes section of this fissure.

* * * *

The Central Pumping Project.

In regard to the Central Rand pumping project which we discussed at some length in our last issue, it is interesting to note the following in the report of the City Deep for last year: "Negotiations have been entered into with the adjoining outcrop companies regarding the installation of a central pumping station. The object is to prevent as much water as possible from flowing to the deep-level mines when the outcrop mines are exhausted and closed down. The pumping station will be located on the 18th level of the City and Suburban mine, and the Village Deep has agreed to share in its cost." To what extent this scheme will be affected by the result of negotiations for the absorption of the City and Suburban by the City Deep is not at present known.

* * * *

A Rhodesian Iron Industry.

Mr. F. P. Mennell has contributed to the *Bulawayo Chronicle* a series of articles on "An Iron Industry for Rhodesia." Mr. Mennell sums up his facts and arguments by showing that it would be practicable to establish a very valuable iron industry in Rhodesia within about 200 miles of the coast, and he points out the necessity of doing this on a large scale. His idea, of course, is a large export trade, and he suggests that the whole scheme as contemplated might cost £2,000,000. Upon the point as to where this capital should come from, Mr. Mennell says that the man who should supply it is the British ironmaster, who is in danger of being squeezed out of existence in his own country by dear coal, dear labour, and poor supplies of ore. If British capital could be brought into the country for any purpose whatever, it would, of course, be welcomed, and there are many directions in which Rhodesia must now offer a better field of enterprise than do the older countries.

* * * *

"The S.A. Engineer and Electrical Review."

The current (April) number of the *S.A. Engineer and Electrical Review*—which may be obtained at the Central News Agency—maintains its high record for interest and information. The contents include short articles on the following subjects: The outlook in the general engineering market: Hume pipes; Armstrong Whitworth's latest absorption: British sewing machines and typewriters; the Postmasburg boom; successful British electric welding process; water cooling proposed for turbines; Director of Irrigation retires; new central home for Rand scientific societies; reducing railway carriage costs; the S.A. alkali industry; Chamber of Mines and new patents; new world's record for rectangular shaft-sinking; agents in overseas markets; British achievements in wireless "direction finding"; Armstrong-Suler—a new marine Diesel engine; mass production of British locomotives; Congo railways; electric lamp profiteering; the Union Steel Corporation; British manufacturers' difficulties; the production of oil from shale. Longer articles appear on: New rolling stock for the S.A.R.—review by Sir Wm. Hoy of the rolling stock position of the S.A.R.; Electric power supply of the S.A.R.—report by Messrs. Merz and McLellan on the question of purchased power supply and private enterprise; The modern handling of coal in bulk—lessons from English coal handling practice for South African ports (with illustrations); S.A. mines as a machinery market—important statistics of a year's trade; Modern colliery layouts—valuable article by the President of the S.A. Institute of Electrical Engineers on the uses of electricity as applied to S.A. coal mines; The manifold uses of electricity—a page devoted to electrical propaganda; The Pretoria portland cement industry; The coal resources of Natal; Changes in the engineering trade; The month in the engineering, electrical and allied trades; Motor supplement.

* * * *

Increased S.A.R. Rates.

The Railway Department this week announces the following important increases in railway rates: Passenger fares, excluding season tickets: The existing surcharge will be increased from one-tenth to one-sixth of the published fares. Season tickets: The existing surcharge will be increased from one-tenth to one-sixth of the published rates. Parcels and excess luggage: Charges will be based on the existing scale, plus 10 per cent. Livestock: The existing surcharge of 25 per cent. will be increased to $33\frac{1}{3}$ per cent. Goods traffic, including coal for local consumption conveyed distances over 500 miles :The surcharge of 25 per cent. will be increased to $33\frac{1}{3}$ per cent. No alteration will be made in existing railway rates (excepting sidings, charges and miscellaneous services) for coal and coke in full truck-loads for local consumption, conveyed distances not exceeding 500 miles. Bunker coal: The existing flat surcharge of 10s. per ton terminal and 6d. per ton and the special surcharge of 25 per cent. on total charges will be cancelled, and an all-round surcharge of 20s. per 2,000 lb. will be added to the rates in force prior to June 5, 1916. On the production of proofs, and subject to such conditions as may be prescribed by the Administration from time to time, a rebate of 13s. 10d. per 2,000 lb. will be allowed off bunker coal rates on coal utilised for bunkering vessels carrying full cargoes of export coal from Union ports and Lourenco Marques overseas beyond South or South-West Africa. Export coal: On the production of proofs, and subject to conditions prescribed from time to time by the Administration, a rebate of 18s. 10d. per 2,000 lb. will be allowed off bunker coal rates on coal exported as cargo from Union ports and Lourenco Marques to places beyond South or South-West Africa. A special summary of the alterations, giving full details of the increased tariffs, is being published.

* * * *

The New Science of Industry.

Modern industrialism is developing towards the formulation of a science of industry. To supply the knowledge on which such a science can be based is the motive of industrial research. On it, and on it alone, can conclusions safely be drawn (says a special correspondent of the *Times* Trade Supplement). whether the subject be technical processes, cost of production, problems of factory health, or the psychological problem of the management of labour. Until investigation has proceeded over a wide field, and information has been collected over a long period, no such science can be formulated. The last few years have seen many changes in the industrial outlook on these questions. The national necessity that forced employers into combination compelled them to value accurate knowledge of facts, and to recognise that the collection of industrial data was a proper charge on trade. The growth of federations and the increase in the power of these bodies alter their position fundamentally. Instead of continuing as the first line of defence against labour aggression, they have become the trade headquarter staffs; they form the higher industrial commands. The military parallel repays consideration. It is necessary that they should know precisely what is happening among their ranks, the extent of output, analysed under its main divisions, the ways in which trade is moving, the ways in which labour is being paid—and in the long run it is probably necessary that they should know the proportion that profit is bearing to either capital or turnover. With such information, trade can be gauged, markets can be explored, and, in dealing with labour questions, opinions can be verified. It is only on such a basis that a higher command can work, and, if there is to be any development of the "Court of Inquiry" principle in industry, no trade is secure without this knowledge.

* * * *

The Non-Ferrous Metal Industry and Research.

The following memorandum is published by request of the British Non-Ferrous Metals Research Association: The value and importance of scientific and industrial research as an aid to progress in the industries dealing with the production, manufacture and utilization of non-ferrous metals and alloys has been recognised by the formation of the British Non-Ferrous Metals Research Association. As is now well known, these Research Associations, which are the outcome of the scheme for industrial research formulated by the Government, are limited liability companies, working without profit, and with a nominal guarantee from their members in place of shares. At the end of 1919 thirteen Associations had been formed, representing important British industries, and ten more are now in process of formation. The policy of the Government is to encourage each industry to organise for itself an association for the express purpose of establishing information bureaux, and of directing and controlling all research and experimental work that affects the welfare of the industry as a whole. The British Non-Ferrous Metals Research Association is a national institution, its province including all the non-ferrous metal industries throughout the country. Its main objects are threefold. (1) The dissemination among its members of technical and scientific information. (2) To conduct pure scientific research to gain new knowledge. (3) To conduct industrial research so as to utilize the results of pure scientific research. All British firms who are engaged in any branch of the non-ferrous metals industry, whether producers, manufacturers or users, are invited to join the association, which has been established in their interests, and thus become eligible for benefits resulting from its scientific investigations. Non-British firms will be excluded from membership. The members of the association will pay an annual subscription based upon the capital employed in the business, except where a firm's capital is partly employed in other than non-ferrous metal work, in which case the firm's subscription will be specially assessed. The minimum annual subscription is £25, and the maximum annual subscription £200 (for the first year). Efforts are now being made to obtain suitable quarters for housing an information bureau in Birmingham, and later to establish branches in various centres of the country. In the near future a programme of research will be drawn up, primary attention being given to the more urgent needs of the industry. At the outset, the association will not set up its own laboratories, but will utilize existing institutions, such as the National Physical Laboratory, and the Universities, etc. If the work of the association is to be efficiently carried out, and is to be of practical value to the industry, it must be well financed and fully equipped. General support is necessary if the full measure of Government aid is to be obtained and it is hoped that all firms in the non-ferrous metal industry will become members. The Council of the Association, consisting of twenty-five members, is well representative of the non-ferrous metal industry.

TOPICS OF THE WEEK.

STATE REVENUE AND WHAT THE MINES PAY.

THE report of the Commissioner for Inland Revenue, issued this week, has several features of interest. The statement of inland revenue collected during the financial year April 1, 1918, to March 31, 1919, shows that the net collections amounted to £12,620,758 9s. In 1914-15 the total was £8,239,573; 1915-16, £9,147,717; 1916-17, £10,427,253; 1917-18, £12,040,169. The cost of administration was approximately 1·43 per cent. of the collections, compared with 1·42 per cent. in the previous year. The increase in the net total of inland revenue for the year, as shown by the above comparative figures, was £580,584. The net collections under the head of mining from April 1, 1918, to March 31, 1919, were; Diamond mines, £402,018 5s. 1d.; gold mines (leases), £99,903 12s. 9d.; other mines, £10,430 13s. 1d.; licences and mynpacht dues, £259,069 4s. 7d.; export duty on diamonds, £336,028 18s. 11d. During the year ended June 30, 1919, the amount collected under the heading of State ownership in diamond mines was £392,857, compared with £441,649 during the year ended June 30, 1918. The export duty on diamonds collected for the twelve months to June 30, 1919, amounted to £555,088. For the year ended June 30, 1918, the corresponding figure was £270,431. As from February 19, 1919, the export duty was increased from 5 to 10 per cent., and the exemption in respect of alluvial diamonds withdrawn. The increased rate of duty was primarily responsible for the increased revenue in 1919, but the restricted production and rise in prices also contributed to the larger yield. Under the Income Tax Consolidation Act, 1917, the amount received from diamond interests for the twelve months to June 30, 1919, was £388,182, making the total mining revenue from diamonds for that period £1,336,127. The total revenue from the gold mines for the corresponding period was £1,276,698, and the mining revenue from all sources £2,964,223. The number of diggers who contributed to the diamond taxation was 118. Under the head of licences the total of net collections for the year ended March 31, 1919, was £106,124 7s. 4d. The revenue collected during the financial year in respect of licences reserved to the Union totalled £106,124, contributed by the respective Provinces as follows: Cape, £55,903; Natal, £16,166; Transvaal, £17,192; Orange Free State, £16,863. Stamps and documents and fees of office and Court yielded £582,196; bank note duty, £60,747; company capital duty, £31,058; insurance coupon duty, £44; total, £674,045. The corresponding figures for the four previous years were: 1915, £453,084; 1916, £471,182; 1917, £509,050; 1918, £585,874. From the death duties the total net receipts for the twelve months to March 31, 1919, amounted to £224,601, an increase of £15,787 over those of the previous year. The returns in this respect, however, are from three Provinces only; the Master of the Supreme Court, Capetown, having been unable to furnish any information regarding the estates dealt with in his office. The Inland Revenue Commissioner points out that the taxes on inheritances are still levied under the various laws in force in the several Provinces prior to Union. These laws are in urgent need of consolidation. Meanwhile, there is a perplexing diversity of rates and systems of taxation throughout the Union. The report further emphasises the relatively small yield from such sources, as compared with that from the taxation of incomes. This is ascribed in part to the out-of-date provisions of the existing laws, rendering them ineffective in dealing with the constantly changing forms of wealth and modern methods of control, and in part to inherent defects. The following criticisms obviously call for the serious attention of the Legislature:

> A succession duty with rates which vary according to the relationship of the successor to the predecessor leaves to the discretion of any testator the contribution which his estate is to make to the State revenues, while both such a Succession Duty and an Estate Duty on the lines of the Transvaal Law (Act 28 of 1909, Transvaal), ignore entirely the ability of the recipient of any inheritance to bear taxation upon his inheritance. The poor man and the rich, who inherit from the same estate, pay duty at the same rates.
>
> These provisions in the taxation of capital receipts by way of inheritance may be contrasted with the taxation of income receipts. The rates levied upon the latter are far heavier, and are calculated in accordance with the ability of the recipient of the income to bear the taxation.
>
> Of the accumulated wealth of the country, no small amount of that classed as "movable property" escapes all payment of taxation on transfer, being disposed of by gift *inter vivos* with or without the reservation of the life interests by the donor, and for the same reason much of the fixed property escapes with the payment of the low fixed rate chargeable as transfer duty. This may be regarded as accounting in part for the fact that so few large estates appear in the Death Duty statistics in comparison with the number of large incomes shown as liable to income-tax.
>
> It is considered that the smallness of the levy imposed, and the possibilities of evasion permitted by the existing laws, provide sound reasons for their early amendment and consolidation.

A table contrasting the taxation of inheritance and incomes in the Transvaal, Natal, and Orange Free State shows that whereas the total percentage of taxation to value in the case of the inheritance duties is 2·4 that of income taxation is 8·04. Of estate and succession duty the total net receipts for the year ended March 31, 1919, were £221,601. With regard to the income taxation, the report shows that the collections for the twelve months ended June 30, 1919, aggregated £5,422,176, of which the normal tax accounted for £2,723,272; the super-tax (on incomes exceeding £2,500, accruing to individuals resident or carrying on business in the Union) £735,220; the dividend tax £988,374; and the excess profits duty £975,310. Penalties to the amount of £6,263 were imposed on 704 persons for the omission of taxable income, while 222 were convicted for failure to render returns. The number of persons paying the normal tax increased from 44,748 in 1915 to 66,058 in 1918. The average taxable income of individuals (exclusive of super-taxable income) for the Union was approximately £765. The 1918 average for Capetown was £1,106; Port Elizabeth, £1,216; East London, £870; Kimberley, £718. Analysis shows that three-fifths of the normal tax is paid by individuals and two-fifths by companies. A statement is given indicating the principal sources from which the normal taxable income is derived. Expressed as percentages of the total Union taxable income these sources, broadly speaking, compare as follows: Trade and manufactures, 34·51; employment and professions, 29·97; mining, 15·26; farming, 8·96; investments, 7·98; banking and insurance, 3·32. The report embodies suggestions for merging the super-tax into the normal tax after the problem of doing away with double taxation of the same income in different States (recently reported on by a Royal Commission in England) has been overcome. The final levy of the excess profits duty will be made on incomes accruing during the year ending June 30, 1920.

New Method of Paying Wages.

Messrs. Lever Bros., Ltd., are contemplating the introduction of a new method of paying wages, by which, instead of their men crowding round the wage office and waiting their turn, each man would have a little private banking account in a bank near his own house—not the firm's bank, but one of his own selection. The firm would advise their bank to credit each man from the pay-sheet with the amount of money he is entitled to receive for his wages. Under this system a man will draw out of his bank what he wants for his household expenses, and what he does not need will rest in the bank. The amount left as deposit with the bank will be supplemented by an addition from the firm, and this will give a man 5 per cent. on his money left in the bank; so that, instead of money lying at home earning no interest, by adopting this system it will earn interest. Further than that, the tendency will be always to leave a little more each week in the bank, and, if this system is largely adopted, it will mean that, instead of crowding round a little pay office, the men will be led to become savers, having money to invest in the business they are engaged in, or other businesses.

SIEMENS BROTHERS

& CO., LIMITED.

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE,
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

WIRES

Rubber Covered. Gutta-Percha Covered.
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

PRIMARY CELLS

Fluid and Dry.

Representative in South Africa :

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams: "SIEMENS."**

RAND GOLD MINING RESULTS IN 1920.

A Summary of Statistics as to Output, Costs, Profits and Developments—Gold "Premium" the Dominating Feature.

Hereunder we publish a synopsis of the results secured by Witwatersrand gold mining concerns during last year, as exhibited in the reports which have been published to date. The outstanding features of the year's work on the Rand have, of course, been a large rise in working costs and the incidence of the gold "premium." The following summary of results will no doubt be of material value to investors who require in handy form a brief recapitulation of the principal facts and figures contained in the reports.

New State Areas.

Shaft sinking was restarted with the permanent equipment at the south shaft in February and at the north shaft in April, and has continued throughout the year, with the exception of a period from 16th June to 9th July, when the sinkers and drivers were on strike. The shaft sinking accomplished was as follows: North shaft, 920 feet, total depth, 1,065 feet; south shaft, 1,338 feet, total depth 1,441 feet.

New Primrose.

Mr. W. L. White writes: Notwithstanding an increase in the working costs, the company continued to make a monthly profit throughout the year. There was an increase in the yield per ton due in part to the good values obtained in the May Deep and May Consolidated sections, and also to the increased amount of underground sorting which has been carried out during the year. There remains an area of about 30 claims to be developed. The ore reserves, which have been recalculated, are now estimated at 45,400 stoping tons, having an assay value of 6·4 dwts. over 53 inches.

Langlaagte Estate.

In 1919 Mr. W. L. White writes: The quantity of ore crushed during the year was 475,480 tons, which was 58,210 tons less than that for the preceding year. The average number of natives working underground for the year was 2,435 as against 2,673 for the previous year. Working costs at 21·172s. per ton were 2·101s. per ton higher than in the previous year, owing largely to the smaller tonnage crushed, and in addition there was the increased cost of labour and materials and the contributions under the new Miners' Phthisis Act. With a view to placing the mine in a better state of development, shaft sinking is now being pushed forward as rapidly as possible. Although not so high as during the previous year, the development results have been satisfactory. The ore reserves have been recalculated and are estimated at 1,002,400 tons of an average value of 6·5 dwts. over a stoping width of 52 inches.

Ginsberg.

Owing to the payable ore reserves having become so small in amount that it was no longer possible to keep the mill supplied, mining operations ceased at the Ginsberg property in June, 1919. During the first six months of the year the quantity of ore crushed amounted to 61,120 tons of a value of 5·170 dwts.

Consolidated Langlaagte.

The tonnage milled during the year showed an increase of 4,500 tons compared with the previous year. Working costs were about 1s. 6d. per ton higher than in 1918, principally owing to increases in the cost of stores, to heavy contributions under the Miners' Phthisis Act of 1919, and to higher war bonuses paid to employees. The ore reserves have been recalculated and are now estimated at 2,090,300 stoping tons, having an average assay value of 6·25 dwts. over a stoping width of 55 inches.

Witwatersrand.

The tonnage crushed was 31,600 less than in 1918, and the working costs show an increase of 2s. 4d. per ton over the previous year. The ore reserves have been recalculated and are now estimated at 1,142,500 tons of an average value of 5·9 dwts. over a stoping width of 72 inches.

Simmer Deep.

Tons milled, 508,900; yield per ton, 23s. 4·35d.; costs, 23s. 7·8d.; loss per ton, 3·5d.; total loss, £7,512. Ore reserves, 836,000 tons, 5·1 dwts. over 66 inches.

New Kleinfontein.

The annual re-estimation of the ore reserves shows that on the 1914 basis there were developed 2,312,000 tons of an average mining value of 5·53 dwts. over a stoping width of 58·20 inches. The year under review has been marked by a considerable increase in the working costs. A large part of this increase is due to increased charges: War bonus, miners' phthisis compensation, cost of stores, etc., over which the management has no control, but it must also be admitted that a part of the increased cost is accounted for by the poor efficiency of the underground white worker who is now offering himself for employment, and to the fact that very many of the best men have been obliged to give up work owing to the operations of the Phthisis Act.

Princess Estate.

Working results during the year 1919 did not come up to expectations, owing to the shortage of native labour and the high cost of production. As the year 1918 was abnormal, due to alterations being made to No. 1 shaft and to the influenza epidemic, the following comparison is made for the past three years: Tons mined, 1917, 335,733; 1918, 285,384; 1919, 282,712. Per cent. sorted, 1917, 21·9; 1918, 22; 1919, 17·3. Tons milled, 1917, 261,600; 1918, 222,430; 1919, 233,700. Recovery value per ton, 1917, 25s. 7d.; 1918, 26s. 1d.; 1919, 25s. 9d. Working costs (including the actual cost of development, and not the figure of 2s. 6d. per ton milled which is charged for development in the monthly returns), 1917, 24s. 3d.; 1918, 29s.; 1919, 28s. 5d. Premium on gold, 1917, *nil;* 1918, *nil:* 1919, £30,866. Loss, after allowing for sundry revenue, 1917, *nil;* 1918, £28,715; 1919, *nil.* Profit, including sundry revenue and premium on gold, 1917, £21,214; 1918, *nil;* 1919, £5,420. Capital expenditure, 1917, £3,019; 1918, £38,753; 1919, £9,188. Compared with 1917 the reduction in tonnage mined, per cent. sorted and tonnage milled, and consequent reduction in gold output, is chiefly due to the shortage of native labour. The premium realised on gold produced after the 25th July was not sufficient to compensate for the reduced output, and in addition there was a further rise in working costs due to increased pay and privileges to employees. The ore reserves, as measured and valued at 31st December, were: South Reef, 116,000 tons, valued at 7·4 dwts. over 28 inches milling width; Main Reef, 205,000 tons, valued at 7·0 dwts. over 56 inches milling width; total, 321,000 tons, valued at 7·1 dwts. over 41 inches milling width. This tonnage shows a decrease of 59,000 tons, while the width is greater by 4 inches and the value less by 0·1 dwt. In addition there are 49,000 tons valued at 7·1 dwts. over a milling width of 28 inches which must be left to protect shafts.

Randfontein Central.

The working profit at the Randfontein Central last year was £309,100, of which gold premium represented £218,600. The yield was 25s. 7d. per ton, and costs just over 22s. Good progress was made with the sinking of the new vertical shafts, the north vertical being sunk 1,595 feet to a total depth of 3,652 feet at the year end, and the south vertical 1,406 feet to a total depth of 3,157 feet. Sinking was somewhat delayed at the south vertical owing to water and bad ground. In addition to the footage sunk, seven main stations and waste bins were cut in the north vertical shaft, and one main station and waste bin in the south vertical. It is intended to stop the north vertical shaft at approximately 4,000 feet, but the sinking of the south vertical will be continued to the full depth of 5,000 feet. The leader and west reefs were intersected in the north vertical shaft at the end of the year. The leader at 3,210 feet gave 9·8 dwts. over 48 inches and the west reef at 3,560 feet giving 9·8 dwts. over 48 inches. The ore reserves have been recalculated and are estimated at 3,802,000 tons of 6·3 dwts. over 49 inches. This includes about 250,000 tons developed by the new method which is not immediately available. The general manager's report shows the mine's development was 48,920 feet, of which 25,800 were on reef, and 8,300 cross-cutting. The Randfontein leader averaged 29·3 dwts. over 12 inches and the west reef 26·9 dwts. over 15 inches. The pumping plant has caused serious delays through bad conditions and inadequacy. Bottom levels have at times been flooded, causing delay in important development ends. A large proportion of this ill-conditioned plant will shortly be cut out by the new plant at the 2,500 feet level of the new north vertical.

Van Ryn Deep.

In 1919 the results, compared with the preceding year, were as follow: Tons milled, 1918 530,550, 1919 570,400; yield per ton, 1918 43·841s., 1919 44·432s.; working costs per ton, 1918 20·579s., 1919 21·474s.; profit per ton, 1918 23·263s., 1919 22·958s.; total working profit, 1918 £617,084, 1919 £654,753; footage driven, risen and sunk, 1918 12,444, 1919 13,304; ore reserve, 1918 2,415,759 tons, 1919 3,200,000 tons; value, 1918 9·0 dwts., 1919 9·1 dwts. In these figures gold has been taken at a value of £4·24773 per fine oz. The actual working profit for 1919 amounted to £787,408.

Glencairn.

The clean-up was carried out at the mill site and 815·816 fine ozs. of gold were obtained. The results obtained from the treatment of accumulated slime were not quite so good as had been anticipated, but better results are now being obtained. The surplus stores and practically all the plant not required have been disposed of.

New Unified.

The tonnage crushed during the year was 9,500 tons less than during the previous year, but notwithstanding a further increase in the working costs this company made a working profit of £21,407 as compared with £27,880 in 1918. The sweeping and washing of stoped-out areas is being systematically pursued, and has contributed a valuable addition to the working profit for the year. Practically no development remains to be done on this mine, and the payable ore reserves, which were recalculated at the end of the year, are now estimated at 149,000 stoping tons having an average value of 6·5 dwts. over a stoping width of 47 inches.

Bantjes Consolidated.

Crushing finally ceased on the 29th January, 1919. The dismantling of pumps, pipes and tracks was completed on the 4th February, 1919, when all underground work actually ceased. The cleaning up of the reduction works was then undertaken. The profit was £21,102, inclusive of the gold premium.

Brakpan Mines.

The issued capital was increased to £823,600. Tonnage milled decreased by 72,900 tons. Working profit, £314,535, is increased by £98,774 in respect of premium on gold and £9,651 adjustment of provision for additional realisation charges, the total working profit for the year under review being £422,960. The ore reserve at the end of the year stood at 2,484,000 tons of an average value of 8·74 dwts. per ton, which is a decrease compared with the previous year of 234,000 tons, the value remaining about the same.

City Deep.

Working profit for the year ended 31st December, 1919, amounted to £457,687, which included £133,115 in respect of premium on gold. There was a decline in the tonnage milled of 52,300 tons. Ore in reserve at 31st December, 1919, was 3,418,050 tons of an average value of 9·4 dwts.; ore reserve position has been well maintained.

Consolidated Main Reef.

Working profit for the year was £93,715, a decrease of £58,165 for the year. Costs increased by 3s. 8d. per ton. The ore reserves at 30th June, 1919, stood at 1,200,900 tons of an average value of 7·6 dwts., which is a reduction for the year of 225,000 tons in quantity, with an increase of ·3 dwt. in value. Working profit for the six months ended 31st December, 1919, was £134,748, which includes the estimated premium to be received on gold. A dividend of 6¼ per cent. was declared for the year ended 31st December, 1919.

Crown Mines.

Working profit £464,114, exclusive of premium on gold, which is an increase of £53,472 over the profit of the previous year. Considering the further increase which has taken place in working costs, this result is satisfactory, and is chiefly due to the milling of 84,000 tons in excess of the tonnage of 1918, and an increase in the value of the yield obtained of 8d. per ton. Allowing for the advanced price recovered on all gold produced from about the middle of July, the working profit is increased by £286,309 to £750,423. At the end of the financial year the ore reserve was estimated at 8,451,400 tons of an estimated value of 6·3 dwts., showing an improvement in the reserve of 153,300 tons, the value being fractionally lower.

Daggafontein Mines.

No. 1 shaft—Development: Driving was re-started at the end of February, 1919, the mine having been flooded since September, 1917. The total footage for the year ended 31st December, 1919, amounted to 2,637 feet, of which 1,298 feet were on reef, and 1,260 feet sampled averaging 25·72 dwts. over 6·96 inches. Of the footage sampled 34·8 per cent. of the assays were payable, averaging 43·15 dwts. over 7·91 inches. At No. 2 shaft 1,941 feet were sunk during the year, making a total depth of 2,969 feet. A summarisation of the somewhat limited data indicates the possibility of intersecting the reef at a depth of about 3,900 feet. The registered capital of the company was increased during the year from £730,000 to £980,000 in order to provide for the 248,268 shares taken up by option-holders on the 27th March, 1919.

Durban Roodepoort Deep.

Working loss of £50,995 when calculating the value of the gold produced at standard price. Allowing for the additional price received on all gold produced from about the middle of July, which is equal to a premium of 22·7 per cent., the working loss is reduced to £15,049. The payable ore developed amounted to 418,700 tons of an average value of 6·6 dwts. The ore reserves remain practically unaltered in tonnage, but show an improvement in value of ·1 dwt. per ton.

East Rand Proprietary.

The tonnage milled amounted to 1,409,500 tons, which is an increase of 37,200 tons. The working profit for the year was £303,816 8s. 1d., an increase of £250,900 7s. 3d. for the year, of which £194,613 1s. 5d. is accounted for by the increased price of gold. The ore reserves at the end of the year amounted to 2,634,350 tons of a value of 6·3 dwts., an increase in the tonnage of 366,350 tons, whilst the value shows a decrease of ·2 dwt.

Ferreira Deep.

For the year ended 30th September, 1919, there was a decrease in the working profit earned, excluding premium on gold, of £81,841; this was due to the lower tonnage crushed and a further rise in working costs. The ore reserves amounted to 807,880 tons of an average value of 8·2 dwts. These reserves show a decrease of 124,520 tons due to the excess of ore stoped from the reserves over the tonnage developed and the value an increase of ·2 dwt.

Geduld Proprietary.

The total profit from gold, taken at its normal value, was £243,419, being an increase of £9,177 for the year. The addition of sundry revenue of £13,263, premium on gold of £77,757, and gold adjustment for 1918 of £903, brings the total profit to £335,342, or £90,657 more than last year. The ore reserves as measured and valued at 31st December, 1919, amounted to 2,580,000 tons, having an assay value of 7·4 dwts. over a stoping width of 61 inches. This is an increase of 70,000 tons of the same width, while the value is 0·1 dwt. less.

Geldenhuis Deep.

Working profit for the year ended 31st December, 1919, amounted to £55,102 4s. 7d., which is an increase of £54,194 2s. 6d. over that of the previous year. The whole of the aforementioned profit is accounted for by the increased price of gold. The ore reserves at the end of the year amounted to 1,375,200 tons of a value of 5·9 dwts., which is a decrease of 171,100 tons, the value remaining the same as the previous year.

Modderfontein B.

The working profit for the year ended 31st December, 1919, amounted to £846,656 11s. 11d., which is an increase of £188,096 18s. 1d. for the year, of which £151,092 11s. 10d. is accounted for by the increased price of gold. The tonnage milled was 41,000 tons higher for the year and the value of the yield (based on the standard price of gold) showed an increase of 2s. 5d. per ton milled. The ore reserve on remeasurement and revaluation at 31st December, 1919, totalled 3,215,100 tons of an average value of 9·0 dwts. over 63 inches. Compared with the preceding year, the reserve shows a decrease of 162,900 tons, the grade a decrease of ·2 dwt., and the stoping width an increase of one inch.

Modderfontein Deep Levels.

The tonnage milled for the year ended 31st December, 1919, was 507,200 tons, or 1,100 tons more than during 1918. The total profit from gold, taken at its normal value, was £643,437, being an increase of £49,586 for the year. The addition of sundry revenue of £6,883, premium on gold of £113,031, and gold adjustment for 1918 of £1,093, brings the gross profit for the year to £761,126, or £161,550 more than the preceding year's figure. The developed ore reserves, as measured and valued at 31st December, 1919, amounted to 3,775,000 tons, having an assay value of 9·1 dwts. over an estimated stoping width of 77 inches. The tonnage is greater by 325,000 tons and the value shows an improvement of 0·3 dwt., while the width is 1 inch less compared with the figures of a year ago.

Modderfontein East.

At the end of the financial year, 30th June, 1919, the tonnage of ore developed had increased to the satisfactory figure of 850,000 tons of an estimated value of 8 dwts. During the current year, now that both No. 2 and No. 3 shafts have reached the reef a considerable amount of work will be possible in widely separated areas, and much information will be gained as to the general possibilities of the mine.

New Modderfontein.

The directors' annual report for the year ended 30th June, 1919, stated that the new main winding plant was completed and came into service in October, 1918, which, with the coming into operation of the new reduction plant, resulted in an increase for the year of 236,400 tons in the tonnage milled and an increase in the working profit of £256,627 10s. 10d. The working profit for the six months ended 31st December, 1919 (after allowing for the estimated premium on gold, £191,894, for the period from 25th July, 1919, to 31st December, 1919), amounted to £719,792. A dividend of 37½ per cent. was declared on the 17th December, 1919.

Nourse Mines.

The report for the year ended 30th June, 1919, states that the hope expressed last year that the native labour would increase, and thus enable the mine to give a better return of profit, has not been realised. Under the circumstances prevailing it has not been possible to operate the reduction plant to its full capacity, viz., 600,000 tons per annum, the tonnage milled for the year being 457,800 tons. The net result of the year's operations was a working profit of £11,291 from a total output of gold of £616,229, or 1·8 per cent. It is very difficult to attempt any forecast for the current year. At the time of writing prospects are not encouraging, additional burdens being the rule rather than the exception. Unless the labour supply improves the margin of profit will be almost negligible. No dividends were declared for the financial year ended 30th June, 1919. The actual working results for the six months ended 31st December, 1919, based on the standard price of gold, was a loss of £12,240, against which, however, the estimated premium on all gold produced from about the middle of July, 1919, to 31st December, 1919, amounted to £59,072, thus leaving a working profit of £46,832.

Robinson Deep.

The working profit for the year ended 31st December, 1919, after estimating the amount due to be received in respect of gold premium at £93.059, amounted to £152,567. The average cost per ton for 1919, viz., 25s. 10·920d., was considerably exceeded during the latter portion of the year, rising to 28s. 2d. in the month of December. The ore reserves are estimated at 1,583,000 tons of fully developed ore of an average value of 6·59 dwts. per ton over a stoping width of 62 inches, and 29,000 tons of partially developed ore of an indicated value of 5·41 dwts. over a stoping width of 57 inches.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P. O. Box 4047. Telegrams: "THAINE."

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 21 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record*. In January-April, 1920, we secured 14 out of 22 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

ROBINSON.

Working profit £22,871, or 1s. per ton, when calculating the value of the gold at standard price, being a decrease of £40,914, or 1s. 7d. per ton, as compared with the previous year. 22,300 tons less were milled; the revenue per ton was 3d. lower, and working costs were higher by 1s. 4d. per ton. After allowing for the additional price received on gold produced, the working profit was increased to £76,062. The Leader and South Reef ore remaining in the mine has been re-estimated as at 31st December, 1919, and on a conservative basis amounted to 229,400 tons—a decrease of 92,600 tons.

ROSE DEEP.

Working profit for the year ended 31st December, 1919 (including £71,311 18s. 4d. realised from premium on gold), amounted to £198,149, an increase of £58,336 over that of the previous year. The tonnage milled showed a decrease of 12,000 tons. The ore reserves amounted to 3,031,280 tons of an average value of 5·2 dwts., which is an increase of 121,760 tons.

SPRINGS MINES.

Total working profit for the year, £343,665 7s. 3d. The tonnage milled increased by 7,000 tons. The yield at 38s. 2·41d. was less by 4s. 1·96d. Working costs at 26s. 9·14d. are 4s. 2·57d. per ton milled higher. The ore reserves at the end of the year amounted to 2,417,298 tons of an average value of 8·74 dwts.

JUPITER.

The total working profit for the year ended 31st December, 1919, after allowing for gold premium of £32,000, amounted to £2,952. The working costs increased from 19s. 1·094d. per ton in 1916 to 24s. 1·884d., or an increase of 5s. 0·793d. per ton milled. The ore reserves are estimated at 588,000 tons of fully developed ore of an average value of 5·82 dwts. per ton over a stoping width of 59 inches and 63,000 tons of partially developed ore of an indicated value of 5·64 dwts. over a stoping width of 67 inches.

VILLAGE MAIN REEF.

Working profit of £51,439 was declared for the year 1919, after including premium on gold, £30,139. The tonnage milled for the year was 218,900 tons, a decrease of 16,800 tons for the year.

WOLHUTER.

The working profit for the financial year ended 31st October, 1919, amounted to £64,316, after allowing for the estimated premium on gold, £18,599. Decreased tonnage milled, 31,030 tons. The ore reserves at the 31st October, 1919, amounted to 693,894 tons, value 5·7 dwts., which is a decrease of 162,976 tons.

VILLAGE DEEP.

Working profit for the year ended 31st December, 1919, was £105,942, or 3s. 11d. per ton milled, which includes £80,101, the estimated premium on gold. The ore reserves at the end of the year amounted to 2,389,700 tons of an average value of 6·3 dwts., an increase of 62,500 tons, whilst the value is unchanged.

WEST SPRINGS.

No. 1 shaft: Excellent progress was made, and the shaft at the end of the year had reached a depth of 982 feet, of which 952 feet were timbered. No. 2 shaft: At the end of the year the shaft had reached a depth of 591 feet, 564 feet of which were timbered.

GOVERNMENT (MODDERFONTEIN) AREAS.

The consulting engineer, in his annual report, writes: The returns from the mine for the year 1919 again show a further improvement on previous years. The following comparative figures summarise the position: Tons milled, 1918 1,303,500, 1919 1,361,000; yield per ton, 1918 33·181s., 1919 35·676s.; working costs per ton, 1918 19·735s., 1919 21·025s.; profit per ton, 1918 13·116s., 1919 11·651s.; total working profit, 1918 £876,327, 1919 £997,017; footage driven, risen and sunk, 1918 11,640, 1919 37,321; ore reserves, 1918 9,415,000 tons, 1919 11,001,700 tons; value, 1918 8·0 dwts., 1919 8·6 dwts.

SOUTH AMERICA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

HEAD OFFICE: MONTREAL, CANADA

ARGENTINE Buenos Aires.
BRAZIL Rio de Janeiro, Santos, Sao Paulo.
URUGUAY Montevideo.
VENEZUELA Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA Barranquilla.
BR. GUIANA Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON Princes St., E.C.
PARIS 28, Rue du Quatre-Septembre.
NEW YORK 68, William St.
BARCELONA Plaza de Cataluna 6.

THE ROYAL BANK OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - - $500,000,000

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

A FURTHER BATCH OF QUARTERLY REPORTS.

Central Mining and Union Corporation Subsidiaries.

The following are summaries of the reports issued in respect of the undermentioned mines for the first three months of the current year. In each of the reports of the Corner House subsidiaries it is stated:—

In arriving at the profit results above quoted the value of the gold output has been based on the following estimated prices per fine ounce:—

January: £5 7s. 6d. less 1s. per fine oz. for Realisation Charges.

February: £5 10s. less 5s. per fine oz. for Realisation Charges.

March: £5 5s. less 6s. 3d. per fine oz. for Realisation Charges.

The large increase in realisation charges is due to the banks raising the exchange rate on gold proceeds.

Subsidiaries of the Central Mining and Investment Company.

East Rand Proprietary.

Total development footage, 5,578 ft.; total footage sampled, 4,375 ft. The payable reef disclosures were as follows: Main Reef, 90 ft., width 27 in., value 12·1 dwts.; Main Reef Leader, 2,125 ft., width 30 in., value 25·0 dwts.; tonnage mined (and from surface dumps), 386,200 tons; tonnage milled, 355,000 tons; total yield, 96,327 ozs. fine; total yield per ton, 5·427 dwts.; working revenue (including estimated premium on gold) £499,958, per ton milled £1 8s. 2d.; working costs £487,519, per ton milled £1 7s. 6d.; working profit £12,439; per ton milled 8d.; net sundry expenditure, £5,237; total profit, £7,202; debentures purchased, £15,971; undermining rights annuity, £4,392; discount on Debentures purchased, £4,918.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £18,000 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

Development values continue to be satisfactory.

Village Deep.

Total development footage, 3,959 ft.; total footage sampled, 1,616 ft. The payable reef disclosures were as follows:—Main Reef Leader, 1,213 ft., width 30 ins., value, 11·1 dwts.; tonnage mined, 141,570 tons; tonnage milled, 125,300 tons; total yield, 38,583 ozs. fine; total yield per ton, 6·158 dwts. Working revenue (including estimated premium on gold) £199,882, per ton milled £1 11s. 11d.; working costs £197,817, per ton milled £1 11s. 7d.; working profit, £2,065, per ton milled 4d.; net sundry revenue, £386; total profit, £2,451. Capital expenditure, £2,728; undermining rights annuity, £2,673; bewaarplaats moneys, £251.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £6,622 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

Development operations were well maintained, with reef disclosures in keeping with the general average of the mine.

Robinson G.M.

Tonnage mined, 111,300 tons; tonnage milled, 113,900 tons; total yield, 25,951 ozs. fine; total yield per ton, 4·557 dwts. Working revenue (including estimated premium on gold) £135,866, per ton milled £1 3s. 10d., working costs £126,097, per ton milled £1 2s. 2d.; working profit £9,769, per ton milled 1s. 8d.; net sundry expenditure, £158; total profit, £9,611. Government and Provincial Taxes, £700; capital expenditure, £3,164; bewaarplaats moneys, £9.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £1,806 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

Knight Central.

Total development footage, 660 ft.; total footage sampled, 375 ft. The payable reef disclosures were as follows:—Main reef, 115 ft., width 58 ins., value, 11·1 dwts.; south reef, 10 ft., width 54 ins., value 7·5 dwts. Tonnage mined, 68,550 tons; tonnage milled, 68,350 tons; total yield, 21,523 ozs. fine; total yield per ton, 6·298 dwts. Working revenue (including estimated premium on gold) £110,745, per ton milled £1 12s. 5d.; working costs £102,121, per ton milled £1 9s. 11d.; working profit £8,624, per ton milled 2s. 6d.; net sundry revenue, £56; total profit, £8,680.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £2,580 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

Development results obtained in the area east of No. 3 Shaft during the quarter were as follows:—18 Main Reef East Raise 2a, footage sampled 15, width 59 inches, value 14·2 dwts, 838 inch dwts.; 18 Main Reef East Raise 3, footage sampled 55, width 71 inches, value 7·9 dwts., 561 inch dwts.; 18 South Reef East Drive, footage sampled 35, unpayable; 19 South Reef East Drive, footage sampled 15, unpayable; 19 South Reef West Drive, footage sampled 5, unpayable; 17 South Reef East Wince 1, footage sampled 60, unpayable.

It will be observed that the development of the South Reef in this area, to which reference was made in the last quarterly report, has so far proved disappointing.

Rose Deep.

Total development footage, 1,698 ft.; total footage sampled, £1,232 ft. The payable reef disclosures were as follows:—Main Reef, 335 ft., width 41 inches, value 11·5 dwts.; Main Reef Leader, 236 ft., width 36 inches, value 8·1 dwts.; South Reef, 319 ft., width 34 inches, value 11·1 dwts.; Main Reef Leader and South Reef, 13 ft., width 28 inches, value 12·0 dwts. Tonnage mined, 177,626 tons; tonnage milled, 160,200 tons; total yield, 39,605 ozs. fine; total yield per ton, 4·944 dwts. Working revenue (including estimated premium on gold) £204,329, per ton milled £1 5s. 6d., working costs £171,379, per ton milled £1 1s. 5d.; working profit £32,950, per ton milled 4s. 1d.; net sundry revenue, 113; total profit, £33,063. Government and Provincial Taxes, £4,411; capital expenditure, £192.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £5,117 is included in the above Working Costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

Ferreira Deep.

Total development footage, 1,178 ft.; total footage sampled, 1,351 ft. The payable reef disclosures were as follows:—Main Reef Leader, 382 ft., width 5 inches, value 103 dwts.; South Reef, 246 ft., width 19 inches, value 22 dwts.; Pyritic Footwall Reef, 165 ft., width 34 inches, value 11 dwts. Tonnage mined, 112,901 tons; tonnage milled, 105,300 tons; total yield, 32,701 ozs. fine; total yield per ton, 6·211 dwts. Working revenue (including estimated premium on gold) £171,661, per ton milled £1 12s. 7d.; working costs £139,108, per ton milled £1 6s. 5d.; working profit £32,556, per ton milled 6s. 2d.; net sundry revenue, £2,693; total profit, £35,249. Government and Provincial Taxes, £11,343; capital expenditure, £3,625; bewaarplaats moneys accrued, £907.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £5,060 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

Modderfontein B.

Total development footage, 4,340 ft.; total footage sampled, 2,560 ft. The payable reef disclosures were as follows:—Main Reef Leader, 1,360 ft., width 18 inches, value 33·7 dwts. Tonnage mined and from surface dumps, 176,533 tons; tonnage milled, 152,000 tons; total yield, 70,726 ozs. fine; total yield per ton, 9·306 dwts. Working revenue (including estimated premium on gold) £368,509, per ton milled £2 8s. 6d.; working costs £198,064, per ton milled £1 6s. 1d.; working profit £170,445, per ton milled, £1 2s. 5d.; net sundry revenue, £3,371; total profit, £173,816. Government and Provincial Taxes, £31,682; capital expenditure, £29,227; bewaarplaats moneys, £902.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February, in respect of which £6,000 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

The South-eastern Shaft was sunk 169 feet to a total depth of 943 feet, and preliminary work at the South-western Shaft made good progress.

Development operations continue to disclose high-grade ore in the Western section, whilst no disclosures of importance have recently been made in the North-eastern area.

Nourse Mines.

Total development footage, 3,825 ft.; total footage sampled, 2,400 ft. The payable reef disclosures were as follows:—Main Reef Leader, 970 feet, width 22 inches, value 19·0 dwts.; South Reef, 610 feet, width 35 inches, value 16·2 dwts.; tonnage mined, 133,311 tons; tonnage milled, 120,500 tons; total yield, 41,078 ozs. fine; total yield per ton, 6·818 dwts. Working revenue (including estimated premium on gold) £214,549, per ton milled £1 15s. 7d.; working costs £195,690, per ton milled £1 12s. 6d.; working profit £18,859, per ton milled 3s. 1d.; net sundry revenue, £704; total profit, £19,563. Government and Provincial Taxes, £1,411; capital expenditure, £8,784; undermining rights annuity, £408; bewaarplaats moneys, £449.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £5,948 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

Development operations were well maintained with fair reef disclosures.

In addition to the development footage recorded above, No. 1 Shaft (South Nourse) was sunk 83 feet.

Durban Roodepoort Deep.

Total development footage, 2,058 ft.; total footage sampled, 1,510 ft. The payable reef disclosures were as follows:—Main Reef, 510 feet, width 31 inches, value 12·3 dwts.; South Reef, 510 feet, width 7 ins., value 40·8 dwts.; tonnage mined, 81,727 tons; tonnage milled, 71,700 tons; total yield, 22,446 ozs. fine; total yield per ton, 6·261 dwts. Working revenue (including estimated premium on gold) £116,739, per ton milled £1 12s. 7d.; working costs £122,792, per ton milled £1 14s. 3d.; working loss, £6,053; per ton milled 1s. 8d.; net sundry expenditure, £634; total loss, £6,687. Capital expenditure, £16,026.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £4,638 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

The loss shown is due to the low tonnage milled and continued high working costs, which have been further increased by the additional rates of pay above referred to.

The new circular shaft was sunk 373 feet to a total depth of 1,904 feet.

Geldenhuis Deep.

Total development footage, 1,256 ft.; total footage sampled, 860 ft. The payable reef disclosures were as follows:—Main Reef, 50 feet, width 44 inches, value 9·3 dwts.; South Reef, 140 feet, width 26 inches, value 20·0 dwts.; tonnage mined (and from surface dumps), 148,270 tons; tonnage milled, 134,600 tons; total yield, 38,589 ozs. fine; total yield per ton, 5·734 tons; working revenue (including estimated premium on gold) £199,517, per ton milled £1 9s. 7d.; working costs £198,258, per ton milled £1 9s. 5d.; working profit £1,259, per ton milled 2d.; net sundry revenue, £1,023; total profit, £2,282. Government and Provincial Taxes, £900; capital expenditure, £110; undermining rights annuity, £476; bewaarplaats moneys, £169.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £7,151 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

As shareholders were informed in the press, a considerable fall of ground, accompanied by a subsequent inflow of water, took place round No. 1 Shaft at the beginning of April.

It is doubtful whether the value of the reserve in this area will warrant the expenditure necessary to make it safe for further operations, but in any case no work will be possible for some time.

The result of this fall is that both the tonnage output from the mine and grade will suffer to some extent.

Crown Mines.

Total development footage, 10,004 ft.; total footage sampled, 5,550 ft. The payable reef disclosures were as follows:—Main Reef Leader, 3,000 feet, width 22 inches, value 20·0 dwts.; South Reef, 1,350 feet, width 30 inches, value 10·4 dwts.; tonnage mined, 610,470 tons; tonnage milled, 548,000 tons; total yield, 163,605 ozs. fine; total yield per ton, 5·971 dwts; working revenue (including estimated premium on gold) £849,071, per ton milled £1 11s.; working costs £617,436, per ton milled £1 2s. 7d.; working profit £231,635, per ton milled 8s. 5d.; net sundry expenditure, £7,343; total profit, £224,292. Government and Provincial Taxes, £24,247; capital expenditure, £11,074; debentures purchased and provision for redemption, £20,950; undermining rights annuity, £7,476; bewaarplaats moneys, £1,934; discount on debentures purchased, £219.

In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February in respect of which £19,880 is included in the above working costs, of which two-thirds belonged to the period prior to the current quarter.

There was an improvement in the native labour position.

There was an increase of output of 48,000 tons for the period.

Development footage showed a material increase with satisfactory reef disclosures.

In addition to the footage shown above, No. 5a Shaft was sunk 330 feet to a depth of 1,271 feet, and No. 15 Shaft, 63 feet to a total depth of 3,177 feet. Sinking has now been completed at this shaft, and a connecting cross-cut on the horizon of the 19th level has made good headway in the direction of No. 7 shaft.

Subsidiaries of the Union Corporation.

Princess Estate.

Incline Shaft, sunk 13 feet; mine development, 1,299 feet; South Reef, 475 ft. were sampled, averaging 7·04 dwt. over 28 inches; Main Reef, 480 ft. were sampled, averaging 8·07 dwt. over 46·8 inches. It is estimated that the payable ore (based on milling width) developed by the above footage is:—South Reef, 15,600 tons; Main Reef, 4,650 tons—20,250 tons. These figures are subject to recalculation at the end of the year, when block values are made out.

Mined, 65,357 tons; waste sorted out (equal to 15·39 per cent.), 10,057 tons; milled, 55,300 tons; No. of stamps, 60, ran 74·426 days; No. of tube mills, 5, ran 70·926 days; sands treated, 29,930 tons; slimes treated, 28,390 tons; total yield, 14,686·911 fine oz.; total yield per ton, 5·312 dwts. Working expenses £87,624 3s. 2d., per ton milled £1 11s. 8d.; working revenue (gold at standard price) £62,259 11s. 9d., per ton milled £1 2s. 6d.; working loss £25,364 11s. 5d., per ton milled 9s. 2d.; sundry expenditure, less sundry revenue, £300 8s. 1d.—£25,664 19s. 6d. Estimated gold premium at approximately 26·5 per cent. above standard price, £16,451 18s. 9d.; less extra realisation charges for exchange, insurance and freight, £2,549 10s. 6d.—£13,902 8s. 3d.; per ton milled 5s.; net loss, £11,762 11s. 3d. Capital expenditure, £2,082 2s. 11d.; mine development reserve, £224 14s. 2d.

GEDULD PROPRIETARY MINES.

Total development footage, including incline shafts, 4,371 feet; total footage sampled, 2,650 feet. The payable reef disclosures were as follows:—895 feet, having an average assay value of 19·8 dwts. over 36 inches. Mined, 152,813 tons; waste sorted out (equal to 13·29 per cent.), 20,313 tons; milled, 132,000 tons; No. of stamps, 100, ran 86·686 days; No. of Tube mills, 8, ran 86·691 days; sands treated. 47,470 tons; slimes treated, 83,590 tons; total yield, 47,808·954 fine oz.; total yield per ton, 7·244 dwts. Working revenue (gold at standard price) £202,789 16s. 1d., per ton milled £1 10s. 9d.; working costs £152,860 0s. 8d., per ton milled £1 3s. 2d.; working profit £49,929 15s. 5d., per ton milled, 7s. 7d.; sundry revenue, less sundry expenditure, £3,045 11s. 7d.; estimated gold premium at approximately 26·5 per cent. above standard price, £54,081 0s. 3d.; less extra realisation charges for exchange, insurance and freight, £7,164 14s. 5d.—£46,916 5s. 10d., per ton milled 7s. 1d.; gross profit, £99,891 12s. 10d. Estimate of normal income tax and provincial tax, £6,500; capital expenditure, £36,391 11s. 7d.; excess mine development, £6,951 10s. 5d.

Remarks.—The issued capital of the company has been increased by £1,184 to £1,172,413.

During the quarter No. 7 Shaft was sunk 164 feet; its depth at 31st March, 1920, was 418 feet.

MODDERFONTEIN DEEP LEVELS.

Total development footage, 1,806 feet; total footage sampled, 900 feet. The payable reef disclosures were as follows:—610 feet, having an average assay value of 16·3 dwts. over 49 inches. Mined, 150,448; from dump, 7,008, 157,456 tons; waste sorted out (equal to 18·96 per cent.), 29,856 tons; milled, 127,500 tons; No. of stamps, 70, ran 74·634 days; No. of tube mills, 8, ran 75·729 days; sands treated, 49,300 tons; slimes treated, 75,100 tons; total yield, 68,341·485 fine oz.; total yield per ton, 10·72 dwts. Working revenue (gold at standard price) £289,881 16s., per ton milled £2 5s. 6d.; working costs £136,780 1s. 8d., per ton milled £1 1s. 6d.; working profit £153,101 14s. 4d., per ton milled £1 4s.; sundry revenue, less sundry expenditure, £759 17s. 10d.; estimated gold premium, at approximately 26·5 per cent. above standard price, £77,194 3s. 10d.; less extra realisation charges for exchange, insurance and freight, £10,686 12s. 9d.—£66,507 11s. 1d., per ton milled 10s. 5d.; gross profit, £220,369 3s. 3d. Estimate of normal income tax and provincial tax, £19,000; mine development reserve, £896 1s. 5d.

WITWATERSRAND DEEP.

Development Work.—Total footage, 1,368 feet; total footage sampled on reef, 920 feet. The payable reef disclosed was as follows:—Main Reef, 70 feet, width 17·7 inches, value 20 dwts; Main Reef Leader, 535 feet, width 11·0 inches, value 11·1 dwts.

Reduction Works.—Ore received from mine, 88,784 tons; waste sorted out, 0·3 per cent; tonnage crushed, 92,520 tons; number of stamps operating (average), 141·09 stamps; number of tube mills operating, 5 tube mills; value of ore before crushing (reflected by mill yield and value of pulp):—Mill yield per ton, 3·717 dwts.; assay value of pulp, 1·740 dwts.—5·457 dwts.; total yield, 24,049·427 ozs. fine; total yield per ton, 5·198 dwts.

As will be observed from the accounts the gold premium amounted to £20,208, calculated at the declared value during the three months.

The working expenditure includes an amount of £4,000, being consolidated pay, etc., for the period, which has now been paid, but which was not shown in the estimated results for the three months. Details of the consolidated pay have now been settled, and will be included in the published monthly results in future.

Profit for the three months was £11,412.

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.
TRADE MARK

HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd Johannesburg., Bulawayo and Salisbury.

ALLEN, WACK &
SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

BARTLEITE JOINTING

& STREBOR PACKINGS

POINT TO

GREATER ECONOMY, LONGER & BETTER SERVICE, REAL & LASTING SATISFACTION.

BARTLEITE Jointing does not adhere to the metal; it is a Jointing that can be used over and over again, and, owing to its extraordinary durability and reliability in working, it proves the most economical in use—every time. Bartleite may be stored in hot or cold places, and, unlike rubber, it requires no special care for its preservation. It is stocked in thicknesses of 1/32, 1/16 and 1/8 of an inch.

STREBOR Packings are made from carefully selected, long Italian hemp fibres, which are specially treated with lubricants — thoroughly impregnated throughout—prior to being twisted or plaited. Strebor Packings will not char, neither will they set hard in the gland. Let us particularly recommend them as water packings for pressures up to 700 lbs. All sizes from ¼ inch to 2 inches are stocked.

J. W. ROBERTS, LTD., of LEEDS, are the Makers, and BARTLE'S are the Sole South African Agents.

BARTLE & CO., LTD., JOHANNESBURG

LOVEDAY HOUSE P.O. BOX 2466. PHONE 3553. TELEGRAMS : "FAGGOT"

THE UNION'S COAL TRADE IN MARCH.

A Tremendous Increase–Influence of Shortage in Europe–Natal Produces Half South Africa's Output—Garden Colony's Sales for this Year Likely to Exceed Three Million Ton.

The coal output of the Union of South Africa for the month of March, 1920, was the most valuable ever sold in any single month in the history of the country. The total of coal sold by the four Provinces was little short of a million tons (990,960) and the value at pit's mouth was £375,006. This is a very material increase on the February figures of 779,117 tons and £281,285 and leads one to believe that the incidence of high wages and shortage of output in Europe and America is at last having a very real effect on the Union's coal trade. There is already a very active demand for South African coal in several Continental countries and in South America in addition to the market which has existed for years in the East and in Egypt. It is understood that the position on the Railways in regard to trucks and locomotives available for transporting coal to the coast is improving, and everything seems to point to an expansion of coal mining activities in this country in the near and immediate future. The output of the Natal pits last month was a record and there was an increase of almost 50 per cent. both in tonnage and value. It is, too, important to note that Natal's coal output sold for a higher figure than the Transvaal for the first time, we believe, in the history of coal mining in this country. The Garden Colony, in fact, produced one-half of the entire tonnage of the Union and it looks as if Natal's production for the current year will amount to at least three million tons. Details of the Union's coal output in March are as follow:

Province.	No. of Collieries Producing.	Mined.	Percentage of Waste Sorted to Tons Mined.	Total Coal Sold.	Total Value realised at Pit's Mouth.	Value per Ton at Pit's Mouth.	
		Tons.	%	Tons.	£	s.	d.
Springs-Brakpan Area (Transvaal) ..	5	61,187	16·14	47,870	13,163	5	5·99
Middelburg Area (Transvaal) ..	19	545,149	10·12	473,930	136,278	5	9·01
Other Areas (Transvaal)	11	96,565	8·51	82,673	21,296	5	1·82
TRANSVAAL	35	703,201	10·42	604,473	170,737	5	7·79
CAPE	5	777	10·68	695	561	16	1·73
ORANGE FREE STATE	4	87,252	3·35	79,286	22,737	3	8·83
NATAL	27	390,861	18·28	306,506	180,971	11	9·70
UNION OF S. AFRICA	71	1,182,091	—	990,960	375,006	—	

A Typical Natal Colliery.

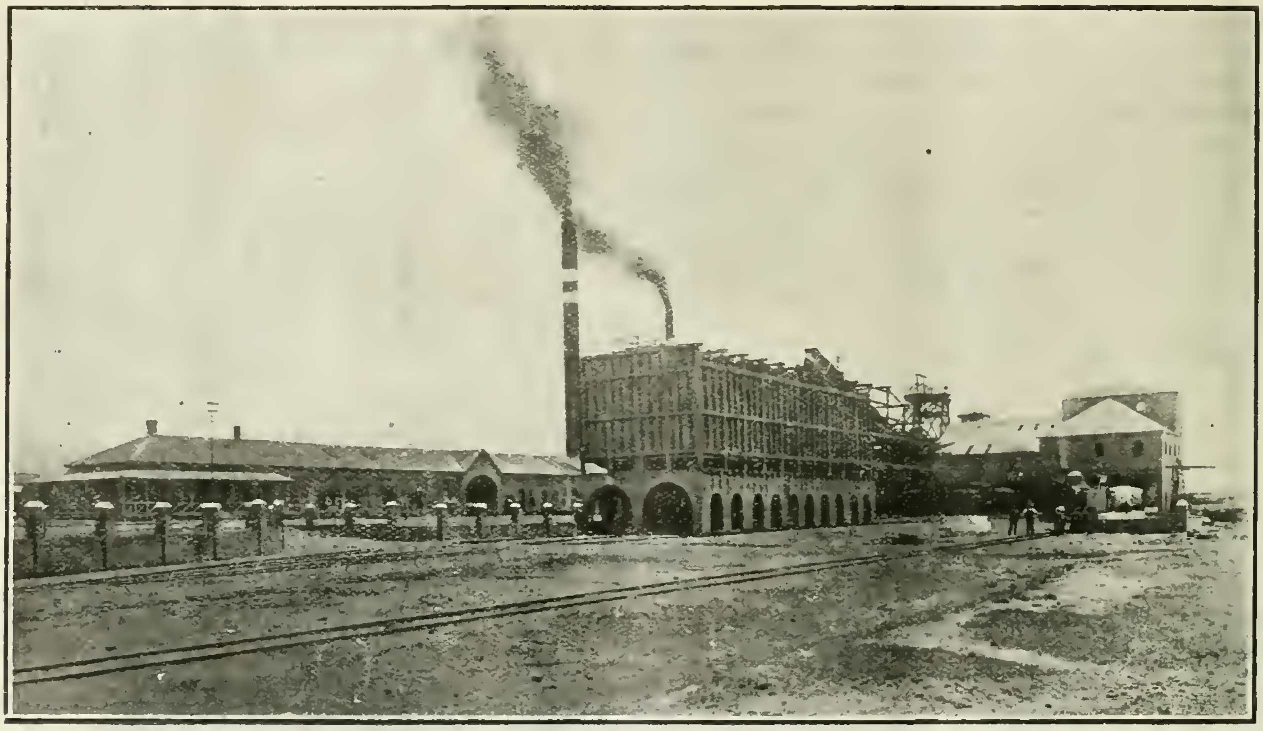
A Natal Colliery—Another View.

Outputs of Transvaal, Natal and the Union of South Africa for the past few years have been:

Period.	Transvaal. Tons Sold.	Value at Pit's Mouth.	Value per Ton.
		£	s. d.
June to December, 1910 ..	2,345,427	584,069	4 11·77
Year, 1911	4,343,680	1,020,539	4 8·39
Year, 1912	4,751,850	1,044,986	4 4·78
Year, 1913	5,225,036	1,142,598	4 4·48
Year, 1914	5,157,268	1,150,746	4 5·55
Year, 1915	5,202,805	1,145,060	4 4·82
Year, 1916	6,136,913	1,382,680	4 6·07
Year, 1917	6,641,229	1,586,062	4 9·32
Year, 1918	6,438,961	1,632,361	5 0·84
Year, 1919	6,622,313	1,694,131	5 1·40
1920—			
January	525,496	141,127	5 4·45
February	494,954	137,917	5 6·88
MARCH	604,473	170,737	5 7·79

	Natal. Tons Sold.	Value at Pit's mouth.	Value per Ton.	Union of South Africa. Tons Sold.	Value at Pit's mouth.
		£	s. d.		£
June to Dec. 1910 ..	1,455,506	418,105	5 8·94	4,160,775	1,123,549
Year, 1911	2,679,551	725,448	5 4·98	7,594,944	1,935,153
Year, 1912	2,765,068	771,755	5 6·99	8,117,078	1,999,378
Year, 1913	2,898,726	891,699	6 1·83	8,801,216	2,240,458
Year, 1914	2,567,817	885,919	6 10·80	8,477,923	2,258,986
Year, 1915	2,304,116	782,464	6 9·50	8,281,324	2,142,479
Year, 1916	3,066,261	1,134,194	7 4·77	10,007,502	2,739,665
Year, 1917	2,890,296	1,466,304	10 1·76	10,382,920	3,275,608
Year, 1918	2,607,133	1,358,934	10 5·10	9,877,325	3,224,597
Year, 1919	2,801,004	1,487,031	10 7·41	10,266,135	3,416,244
1920—					
Jan. ..	230,880	131,917	11 5·13	834,419	294,853
Feb. ..	212,610	122,736	11 6·55	779,117	281,285
March ..	306,506	180,971	11 9·70	990,960	375,006

The by-products produced in the Union during March, 1920, were: Coal converted into by-products, 7,257 tons; by-products produced—coke, 1,776 tons; tar, 3,105 gallons; sulphate of ammonia, 171 tons.



A Well-Equipped Natal Coal Mine.

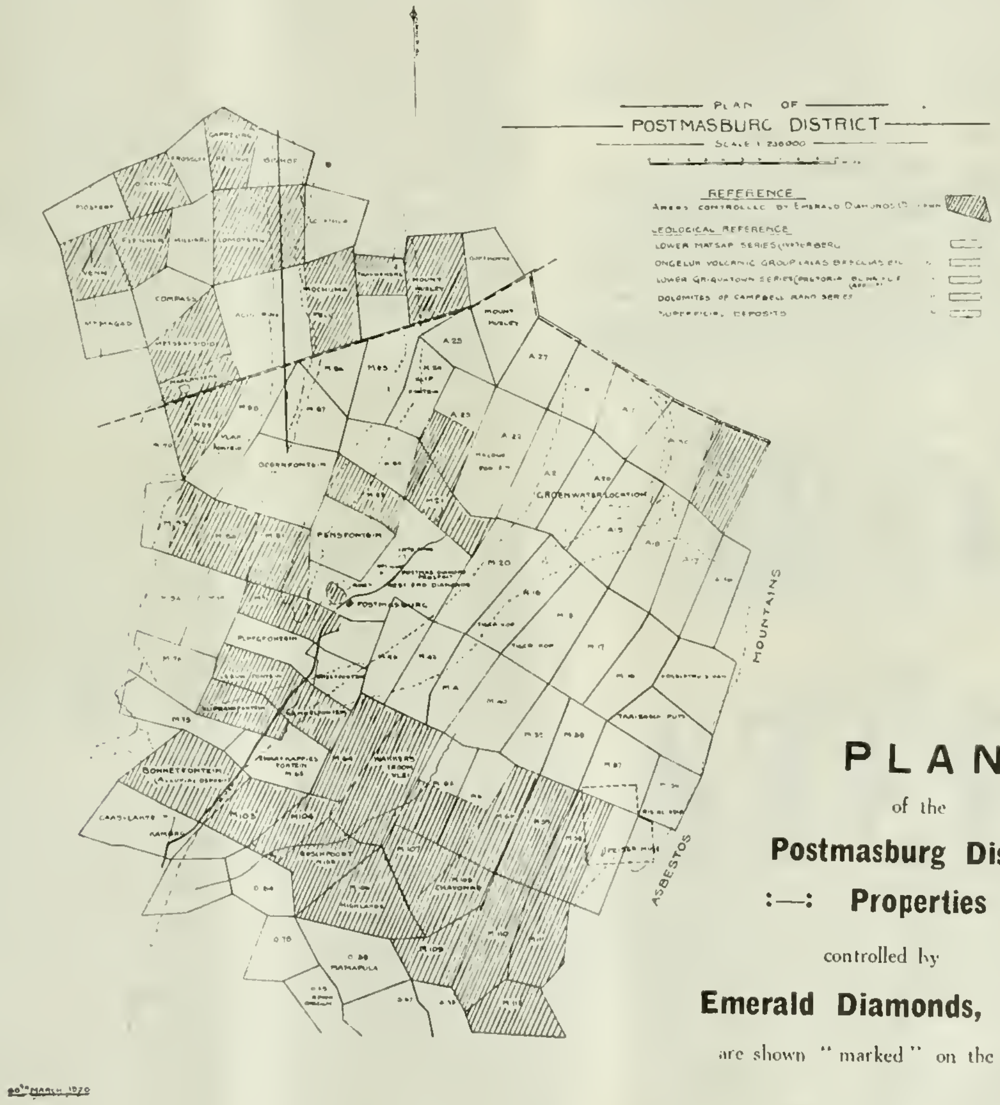
Another View of a Typical Natal Colliery.

EMERALD DIAMONDS, LIMITED.

Reports by Mr. V. Grindley Ferris, Dr. Merensky and Mr. J. Hauman—Huge Interests in the Postmasburg Area—A Highly Promising Block of Farms—Several Occurrences of True Kimberlite Located—Proving a Large Mine on Kouwater.

We publish hereunder the reports of Mr. Grindley Ferris, Consulting Engineer, late of the technical staff of the Consolidated Gold Fields of South Africa; Dr. Merensky, Consulting Geologist; and Mr. J. Hauman, the Company's Manager, on the properties of the Emerald Diamonds, Ltd., in the Postmasburg district. Since these reports were made further important interests have been secured by the company and telegrams have been received from the manager stating that on the farm Kouwater several hundred claims have been located and that diamonds have been found in the preliminary test washings.

Report on Emerald Diamonds, Ltd., by V. Grindley Ferris, consulting engineer, late of the Technical Staff, Consolidated Gold Fields of South Africa:—



PLAN

of the

Postmasburg District

:—: Properties :—:

controlled by

Emerald Diamonds, Ltd.,

are shown "marked" on the map.

EMERALD DIAMONDS, LIMITED.

Title.—I understand that this company has acquired control of a belt of twenty-nine farms in the Postmasburg district, and has an interest in eight other farms adjacent to its holdings, as shown on the attached plan.

Location.—The above-mentioned farms lie immediately to the north and south of the village of Postmasburg, and are located in a belt of diamondiferous country situate in the Hay and Gordonia districts. This strip of country is approximately 10 miles long by 20 miles broad, the longer axis running in an approximately north and south direction through Makganyene, West End and Peiser Mines. The village of Postmasburg lies about 120 miles west of Kimberley, and is connected by a good country road.

Topography.—The country for the most part consists of alternating valleys and ridges, the general trend of which is north and south. The Asbestos Mountains form the eastern and the Langebergen the western boundary of the stretch of country in which the company's belt of farms is located.

Geology.—The geological horizon of the extreme northern and southern sections is that of the Ongeluk volcanic group, and is for the most part overlain by surface alluvials. The central and north-western areas are covered by the dolomite, limestone and cherts of the Campbell Rand Series and by superficial deposits in parts. The country is traversed by well-marked dolerite dykes of the Karoo type striking principally in a north-easterly direction. Kimberlite occurrences have long been known to exist in this area, the Peiser Mine pipe towards the south having been discovered many years ago, while the Makganyene Mine is a more recent discovery. Latterly much attention has been directed to this section of the country, and quite recently most important diamondiferous discoveries have been made, notably the West End and the Postmas Diamond Prospect, which give every indication of being highly payable in character and productive of diamonds of above normal purity. The whole country is traversed by a series of fissures more or less parallel in strike and trending in a north-easterly direction. For the most part these fissures are easily traceable, and on this account this section of country should be prospected without much difficulty or expense. Several kimberlite occurrences were inspected, but it was impossible, with the short period of time at my disposal, to visit all the farms controlled by this company. The most important kimberlite discoveries inspected are summarised as follows:—

1.—KOUWATER.

Location.—This farm is situate immediatey north of the farm Makganyene, on which the Makganyene Mine has been exploited, and is approximately 18 miles north of Postmasburg.

Geology.—Ongeluk group covered by alluvial deposits and outcrop of the banded jaspers of the lower Griquatown Series.

Kimberlite Occurrence.—Immediately east of the outcrop of the Griquatown jaspers a kimberlite pipe has recently been located. Several shafts have been sunk, and yellow ground exposed. The area proved by the present prospecting shafts is estimated to contain approximately 70 claims of pipe matter. From surface indications there is every promise of an appreciable extension of the mine area in an easterly direction. Shafts Nos. 9 and 10, which were only down a few feet, had not yet encountered yellow, and I feel confident that mine ground will soon be exposed.

Quality of Yellow.—As none of the shafts had reached any great depth, No. 2 (32 feet down) being the deepest, it is too early to express any decided view with regard to the quality of this ground. On account of the yellow being much altered by lime—conditions which will disappear as depth is reached—the characteristic features are not clearly visible, and in consequence the quality of the yellow can only be definitely determined when a lower horizon has been reached. The ground now exposed certainly looks promising. The quality improves in depth and contains a good deposit. The width of the alluvial overburden varies from 5 to 18 feet, but as the extension of the mine lies to the east, where the overburden is less, I do not expect a greater average covering depth than from 5 to 7 feet. As this occurrence was only discovered at the beginning of March, no washing has been done. A small machine arrived at the mine at the time of my visit, and the treatment of the yellow ground from the various shafts will be proceeded with immediately.

2.—THAKWENENG.

Location.—The farm is about eight miles east of Kouwater and 20 miles north of Postmasburg.

Geology.—Ongeluk volcanic group, covered by alluvials.

Kimberlite Occurrence.—This farm is traversed by several fissures, and towards the north-eastern boundary of the farm a mine has been located. Several shafts have been sunk in yellow ground, and approximately 110 claims proved to date. From surface indications an extension of the mine in all directions is confidently expected. As no great depth has been reached by the prospecting shafts, and the surface yellow is so much altered by lime, the true quality of the ground has still to be proved. Some thirty loads have been washed, the deposit from which looks most promising.

3.—WAKKERSTROOM VLEI.

Location.—This farm is about 12 miles south of Postmasburg.

Geology.—Ongeluk volcanic series.

Kimberlite Occurrence.—Towards the central portion of this farm a shaft measuring 18 feet by 16 feet has been sunk to a depth of about 50 feet, and on the contact of yellow and reef matter. On account of the recent exceptionally heavy rains the water in the shaft could not be coped with, and in consequence work had to be temporarily suspended. As the development level was under water, no inspection of the working could be made. I am informed that some 20 feet of driving had been done in the direction indicated on the plan, and that the face of the drive was still in yellow when the work ceased. This would account for a width of some 30 feet of yellow ground in a westerly direction from the diabase contact in the shaft, with no western wall located.

Quality of Yellow.—The yellow ground exposed from this limited amount of development looks very good. It contains numerous diabase boulders, carries an excellent deposit, and shows an abundance of carbon of good variety and very fine garnets. About five loads have been washed to date, and I am told that three diamonds of good quality have been recovered. As these stones were recently sent to London, I was not able to examine them. The yellow is covered by an alluvial overburden of five feet in thickness. A shaft about 100 feet to the west of the present working is being sunk, and work to prove the extent of the area lying to the north and south is being proceeded with. Judging from the appearance of the yellow, and from the character of the deposit, I consider this deposit an excellent prospect with great possibilities.

Alluvial Deposits.—On the farm Bonnetfontein, situate some 14 miles south-east of Postmasburg, an extensive alluvial deposit of great depth has been exposed by trenching, and I am informed that diamonds were recovered during trenching operations which were conducted some time back. This farm is bounded on the east by a stream which has its source north of Postmasburg, and flows southwards in close proximity to the West End and Postmas Diamond Prospect Mines. These gravels have been shed from the higher levels in the vicinity of these aforementioned discoveries, and are likely on this account to be diamond-bearing. A small washing machine has just been installed to test this deposit.

Transport.—Transport charges from Kimberley average 1s. 6d. per 100lbs. I would recommend that this company makes provision for its own transport.

Water Supply.—Water is found all over this area at no great depth, and in sufficient quantity for all requirements.

Taxation.—The Government share of profits amounts to 50 per cent., and this tax is only levied after capital expenditure has been amortized.

CONCLUSION.

This section of country, which has been neglected by prospectors in the past owing to its distance from the railhead, has come into great prominence lately on account of the recent important diamondiferous discoveries that have been located there. My first visit to this part was made about a year ago, and I was then most favourably impressed by the potentialities of this district. My recent visit has fully confirmed my previous opinion. I can unhesitatingly say that the stretch of country controlled by the Emerald Diamonds, Ltd., has great possibilities, which fully justify the formation of this company with sufficient working capital to thoroughly exploit these areas. This concern has been most fortunate in securing such a large compact area of country in what is now being proved to be a most important diamondiferous belt, and is to be congratulated on the foresight displayed in acquiring this ground and wasting no time in hastening on the necessary prospecting work. This exploratory work has been very much impeded by the recent heavy floods and the consequent delay in transport, but it is surprising to see how much has been done, despite these difficulties, during the short time the company has had control of these areas. The most favourable indications evidenced in the farms so far partially exploited, coupled with the great speculative possibilities of other areas favourably situated, but on which no work has yet been done, make me view the prospects of the Emerald Diamond Company with every confidence. I am informed that Emerald Diamonds, Ltd., have purchased a substantial interest in a new flotation, "Huxley Diamonds, Ltd.," which has control of a large stretch of country in the Postmasburg district, the areas this company holds being shown on the attached map. In addition to these assets, I understand this company is negotiating to acquire on favourable terms another farm on which yellow ground has been proved over an appreciable area.

Report on the prospects of diamondiferous occurrences on a large block of farms in the Postmasburg district, by Dr. Merensky:—

Johannesburg, 5th April, 1920.

General.—The farms dealt with in this report are held or controlled by the Emerald Diamonds, Ltd. They are situated in the districts of Hay and Gordonia, Cape Province, their relative position being shown on the attached sketch plan. Kimberley, which is the nearest railhead, lies about 120 miles east of these farms. A railway line is said to have been projected to the district. The village of Postmasburg forms, roughly, the centre of the various blocks of farms, and for the purpose of this report those approximately north of this village shall be designated as the northern block and those to the south as the southern block.

Topographical and Geological.—The geological map of the Cape Survey greatly assists in the reading of the geological structure of the country. The oldest strata are represented by the known dolomite formation which lies flat and covers large plains. Its passage to the overlying Griquatown Series (Pretoria Series) is marked by brecciated rocks specially typical of this part for its containing a high proportion of specular iron, from which it derived locally the name of "Blinkklip." Together with the succeeding banded jaspers of the lower Griquatown beds having a north-south strike, the brecciated strata form long stretched ridges and isolated kopjes. The next overlying strata, the middle beds of the Griquatown Series, known as the Ongeluk Volcanic Group, consist of diabases, lavas, breccias and tuffs, forming in the northern part vast plains, while on the south low escarpments and low rounded hills are the feature. A strip of the Matsap Series (Waterberg Formation) also enters into the structure of the main range of hills above referred to. This series has been preserved along an extensive fault north of Postmasburg. The principal water carrier also in this region is the dolomite, which is traversed by powerful dolerite dykes. Along these deep-seated natural walls water is dammed up and can easily be obtained by boring or sinking. The vegetation consists of grass, undergrowth and bush. As a kimberlite occurrence in this region, the Peiser Mine, some 20 miles south-east of Postmasburg, has been known for some time. Further, about 14 miles north-east of that place the Makganyene was found a few years ago, and of more recent date are the discoveries of the West End Mines and Mines I. and II. of Postmasburg Diamond Prospect, Ltd. (*vide* map).

Kimberlite Occurrences on the Northern Block.

(1) *Eastern Portion of the Farm Makganyene.*—In flat country covered with a sandy overburden yellow ground has been opened up in a prospecting shaft. Judging from the nature of the highly micaceous ground, we have to deal with a fissure, the trend of which in a N.E.-S.W. direction is indicated by a line of trees pointing straight to the Makganyene Mine. This fissure ought to be followed up in both directions of the strike.

(2) *Farm Kouwater.*—On the south-eastern portion of this farm a kimberlite occurrence has recently been discovered, and has, since then, been opened up by several prospecting shafts. The presence of mica flakes in ant-heaps in the country, which otherwise is devoid of micaceous rocks, led to the discovery of this occurrence. It is situated on the slope of a ridge in the Griquatown Series. When approaching the area through a ravine from east to west, the locality assumes most markedly the shape of a cirque-like widening. Even if no deposit were found, it could hardly escape to an observant eye that something extraordinary has occurred here. The few shallow shafts so far put down have mostly encountered yellow ground, which, though showing strong signs of alteration by surface limestone, admits of its being declared as pipe matrix. The area proved up to the present covers about 70 claims, but the configuration of the surroundings points to a much larger extent. I recommend to ascertain the area of the mine by further shafts and drives, and in order to determine its value test washings from various sections of the mine should be made. A hand-washing plant had arrived on the property at the time of my visit.

(3) *Farm Thakwaneng.*—A true pipe has already been located on the north-eastern portion of the farm. A large number of shafts and several drives have been made, the exposures enabling fairly accurate observations. The area proved so far represents at least 120 claims, but from indications on the surface an appreciable extension may be looked forward to. The ground has a coarse-grained structure, is very clean—*i.e.*, poor in fragments of country rock—but not of too lively an appearance. Until the extent of the mine has been determined and a few hundred loads from all sections have been treated, no definite opinion can be expressed on its value. On some other farms of the northern block good diamondiferous indications have been found, but no further reference can be made to the same, as no work has been done yet here.

II.—Southern Block.

(1) *Farm Bonnelfontein.*—On this farm an extensive alluvial field occurs, represented by old river terraces along the main spruit flowing southwards from the Postmasburg Commonage. Assuming that diamonds occurred here as a secondary deposit from the West End Mine and the mines of the Postmasburg Diamond Prospect, a series of prospecting pits was sunk, and it is now the intention of carrying out test washings of the alluvial. On the result of these tests the further working policy will have to be decided.

(2) *Farm "M 109."*—A fissure, evidently an extension of the Peiser Mine fissure, has been exposed here in a shaft, above which a wind pipe pump has been erected. The ground is of a light yellow colour, and has a good appearance. The fissure must be followed as far as possible in both directions of the strike, which is N.E.-S.W.

(3) *Farm Wakkerstroomvlei.*—(a) On the southern portion of this farm an occurrence, being similar in character to the one just described, and also exhibiting the same strike, has been opened up. The recommendation, as in the case under 2, also applies to this occurrence. (b) On the central portion

IRON
AND
STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A I, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition: Western Union, Five Letter Edition.

of the farm a deposit of yellow has been located, the ground being of good appearance and carrying good deposit, though containing a large number of boulders of foreign rock. A shaft is down about 40 feet, and drives to the north and south have been set off along the wall; one to the west, being 20 feet in length, has not yet encountered wall rock. The general character of this occurrence indicates a fissure widening. The treatment of a few loads has, I understand, yielded three small stones. Whatever the case may be, the extent and value of this occurrence must be ascertained by the sinking of further prospecting shafts and by test washings. Even if it should prove only of small extent, it might yet become a productive proposition, in which connection reference may be made to the Roberts Victor Mine and the occurrences in the Lion Hill area (Monteleo, etc.), which have proved to be fissure widenings. The entire character of the yellow ground where exposed on the southern block has, in fact, much in common with the yellow in the Boshof and Lion Hill area. As in the latter case, so there are possibilities on the southern block that valuable fissure widenings will be located, though pure pipes may not be in existence. All indications pointing in such a direction must be regarded as favourable.

Recommendations.

When describing the various occurrences, I put forth recommendations in each case for the further exploration of the same. In addition, I now beg to make a few general suggestions for observations in the field. The main fissure zones on the area under report have a S.W.-N.E. trend, in contrast to those in the Free State, where the main strike direction is S.E.-N.W. In the hard rocks of the Postmasburg district the course of the fissures is less liable to obliteration than is the case with the soft sandstones and shales of the Karroo Formation in the Free State and Kimberley area. Where the Postmasburg fissures cut through ridges this is clearly indicated by a "nek," and already noticeable from a distance, while in the plains their course is frequently marked by a conspicuous growth of trees and bush. There is little overburden in the plains, the country rock being mostly exposed. Where outcrops are, however, hidden from view when following up a fissure, pits and shallow shafts have to be sunk. Specially on the slopes of hills circularly and amphitheatrically shaped disturbances of the formation should be carefully investigated. The described pipe on Kouwater furnishes a striking example of such an occurrence, a similar one in another field being the well-known Premier Mine. Where widenings and pipes occur, an instant alteration of the yellow by surface limestone is usually a feature. Generally speaking, prospecting in the Postmasburg area, with its broken country, offers less difficulties than in the Free State, where over widespread areas surface observations are frequently impossible owing to overburden and dense growth of grass. Results, therefore, ought to be achieved sooner, and large occurrences hardly ought to escape the notice of a good prospector. In order to thoroughly investigate and systematically prospect the very extensive area of the farms, an experienced diamond prospector should be appointed for each block, and to him the present "lay prospectors" are to be subordinated.

Conclusion.

The fact cannot be denied that within the short time since the farms were secured a relatively large number of kimberlite occurrences and prospects have been located, the discovery of two pipes being particularly noteworthy. This is the more remarkable as all the discoveries were made by inexperienced men, from which fact it will be evident that the conditions from a prospecting point of view are very favourable. The actual extent and the value of the various occurrences remain now to be proved by further investigations. Whatever the results may be, from general observations and the indications I came across during my inspection of the farms, there is no doubt in my mind that on the systematic prospecting of the ground new discoveries will be added to those already known. Having regard to all these facts and considerations, I am convinced that the farms this report has been dealing with present exceptional possibilities.

Short Report on Some Farms by Mr. J. Hauman (Manager).

(1) *Kouwater.*—About fourteen miles north of Postmasburg, 3,640 morgen. True diamondiferous pipe been discovered. Area not yet proved. So far 100 claims proved. Washed four loads mixed soil with overburden and limestone and altered yellow. Found one half-carat. Exquisite blue-white. Have about 50 loads for next wash, which will be undertaken as soon as the ground is weathered. The yellow ground has the true plum pudding appearance. There are three promising areas on the same farm with good indications. Work has begun on one area. The mine already discovered has the appearance of a huge crater in the hillside.

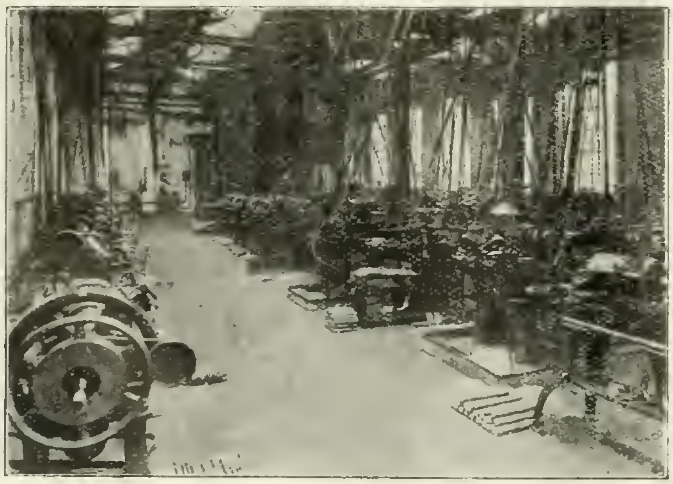
(2) *Makganyene No. 2.*—Here yellow ground has been found in an area not yet proved. A wash has yielded three small diamonds. The wash contains good garnets and carbons. It is possible that this mine extends into that on Kouwater, being situated only about 700 yards from the former.

(3) *Taagkwaning.*—Here a diamondiferous pipe has been located and yellow ground struck. A good deal of yellow ground has been brought up, and a washing plant will soon be erected. This pipe is situated on the main fissure line which extends through Postmasburg.

(3a) *Wakkerstroomvlei.*—True diamondiferous ground has been opened into. Extent not yet proved. Hand washing yielded three small diamonds of exquisite quality. Carbon and garnets of excellent quality. A washing gear will be put up soon.

(4) *Dandyslaagte, Kaffirputs, Highlands, Poortje.*—These farms are south of Postmasburg along the main fissure line. Garnets and other diamondiferous indications exist on all of them. These farms are at present being prospected.

(5) *Bonnetfontein, Boschpoort, Leeuwfontein, Pretoriusvlei, Venterspoort, Uitkomst, Rheboksfontein, Lockshoek, Blaauwboschkuil.*—All south of Postmasburg. Also along



PHONE 3674. BOX 3162

OSBORN'S
PATENT
"Daly" Tappets and
W. & S. Tube Mill Liner.

WRITE FOR DESCRIPTIVE BOOKLET.

Samuel Osborn (South Africa.), Ltd.,
SHEFFIELD AND JOHANNESBURG.

the main fissure lines. In every case have garnets been found on them. Boring operations will begin on Loekshoek within a fortnight. There are good indications of a deposit of tin and galena on Blaauwboschkuil.

(6) *Marthaspoort.*—Work has begun on this farm on a very promising area. Situation near Kouwater. Garnets and mine mica can be found on the surface.

(7) *Venn.*—North of Postmasburg on the main fissure. Has well marked large horseshoe on the hillside, from which plenty of garnets can be recovered. Boring operations were begun there yesterday.

(8) *Springvalley, Fairview, Tigerkop, Tafel Kop.*—All on the main fissure line, which extends through Peiser. Diamondiferous indications on all of the above. All near to and to the west of Postmasburg.

(9) *Gappepin, Langlaagte, Weltevreden.*—All north of Kouwater and on the main fissure line. The farm Gappepin is especially promising.

(10) *Lomoteng.*—A very promising farm north of and adjoining Kouwater. Here two areas have been located on which garnets and mica have been found. One area is a huge horseshoe in the hillside. The other is a well-defined area with several fissures leading into it. Two fissures run into the horseshoe area. Surface work on this farm has been completed so far, and the two areas referred to will be exploited very soon.

(11) *Mariendal, Knapp.*—Both promising farms.

(12) *Doornpan, Karreepan.*—Adjoining each other, and the latter adjoining the commonage of Postmasburg. Are to be prospected shortly. Both excellent farms, especially the latter, which contains a great many surface indications.

The other farms which your company holds are all well situated. No surface work has been done on them yet.

John Hauman,
Manager, Emerald Diamonds, Ltd., Postmasburg.

OUR SPECIALITY!
(NOT TO BE BEATEN).

MAGNETOS
! F. HOPPERT. !
MAGNETOS

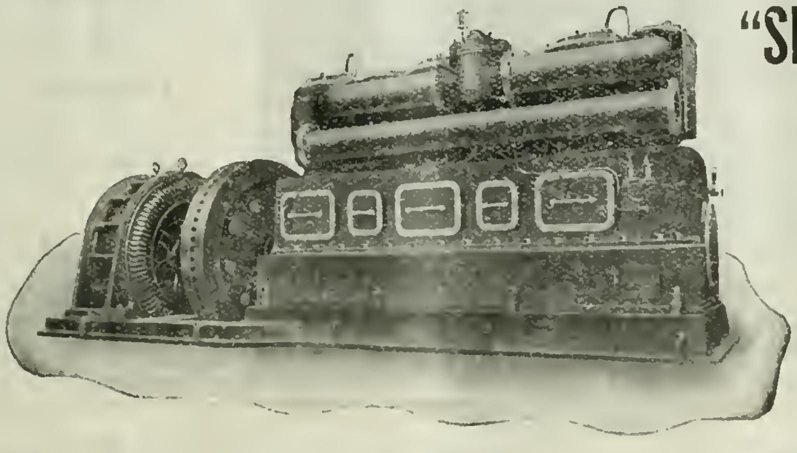
Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:
Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, *Johannesburg Branch Office.*



"SENTINEL" Air Compressors
are characterised by
High Efficiency, Accessability, Simplicity and Reliability.
These can be delivered from stock.

SOLE AGENTS:
The Griffin Engineering Co. Ltd.
94 MAIN STREET, JOHANNESBURG.

"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 90-lbs. It is Suitable for Stoping, Raising and Driving. Low Air Consumption. It drills 30% faster than any other drilling machine.

No Mine Manager can afford to neglect the economic merits of the - - - - **'HYDROMAX'** **The Fastest Rock Drill in the World.**

We have exclusively manufactured drills for thirty-seven years and the "HYDROMAX" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
CARN BREA, CORNWALL (Wm. C. Stephens, Managing Director).

Agents— **WM. HOSKEN & CO.,**
Phones 4113/9. Box 667, JOHANNESBURG. Telegrams: "HOSKEN."

HADFIELDS Ltd.

East Hecla and Hecla Works, Sheffield, England.

Workmen employed during the war, over 15,000.

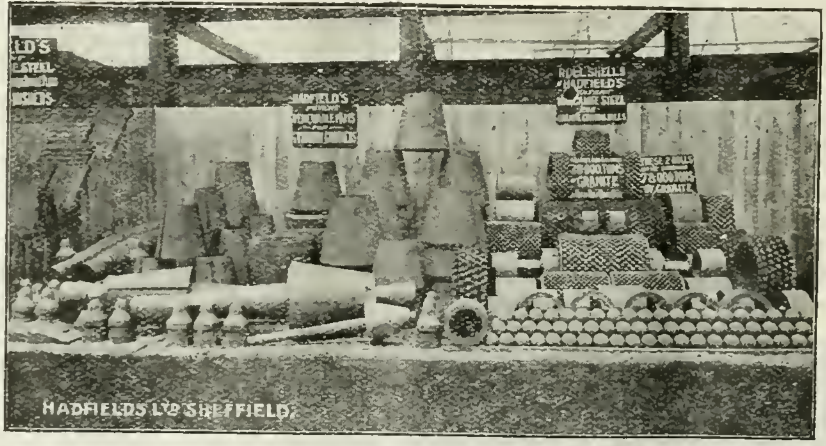
Works area over 200 Acres

COMPLETE STONE BREAKING AND ORE CRUSHING PLANTS

RENEWALS AND WEARING PARTS SUPPLIED FOR EVERY KNOWN MAKE OF MACHINE.

Mining Requisites

Special Forged Steel Balls or Ball and Tube Mills. Shoes, Dies, Grizzley Bars, Crushing Rolls, Jaw Faces, Cones, Concaves, Wheels and Axles, etc.



Steel Castings & Forgings of all descriptions.

Sole Makers of HADFIELD'S PATENT

Trade Mark. **MANGANESE STEEL**

The Supreme Material for the Wearing Parts of Stone Breaking and Ore Crushing Machinery, etc.

Head Office for South Africa:
66 & 47, CULLINAN BUILDINGS, JOHANNESBURG.
'Phone 5900. Tel. Add.: "Hecla."

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents:
P PEECH & CO.,
Angwa Street.

Natal Agents:
THOMAS BARLOW & SONS (S.A.) Limited.
Smith Street, Durban.

THE WEEK IN THE SHAREMARKET.

Liquidation Still in Progress—Outlook Uncertain—More Mines Close Down.

LIQUIDATION on a large scale has continued during the past week and on Thursday morning on High 'Change prices registered what it is hoped by many will prove to be bottom levels for some time to come. There is, however, very considerable divergence of opinion on this point, and it is held in several usually well-informed quarters that Kaffirs are more likely to go lower still than to improve in the near future. It must be confessed that although gold has been selling at a slightly higher price recently and has given evidence of more steadiness, and that although the native labour position is better, the outlook at the present moment is far from promising. At numerous mines the so-called gold "premium" has been insufficient to stem the tide of adversity which has resulted from higher wages, abnormal costs of stores and supplies, extra gold realisation charges, and additional taxation, all combined with poor efficiency and a general spirit of industrial unrest. The February and March output and profit figures clearly demonstrated the fact that operating costs were overtaking the gold "premium" and the returns already to hand in respect of April make it patent that the crisis which threatened a year ago and which was only staved off at the eleventh hour by the advent of the "premium" is again at hand and this time with an even more serious aspect than obtained last year. The returns received up to the time of going to press point to a large number of mines recording substantial losses in respect of last month's operations, and it is by no means surprising to learn that it has been decided to close down the Princess Estate, that the Luipaardsvlei, Aurora West and New Goch are curtailing operations, that the question of suspending work at the Roodepoort United is being seriously considered, and that the fates of numerous other ventures are in the melting pot. All classes of stocks have felt the prevailing despondency. Gold stocks have been the largest sufferers, but diamonds have shared in the heavy decline. Consolidated Diamonds—the recently floated South-West African enterprise—despite the influential auspices of the company have been sold down to 37s. 6d. Crown Diamonds slumped to 10s. 9d., but have since improved a shilling. Roberts Victors have found no higher buyer's quotation than 12s. 9d., and Frank Smiths have been liquidated down to 12s. 3d. despite the very attractive prospects of this company. Transvaal Silver and Base Metals have withstood the onset of the bears fairly well, but have been down under the fifties, whilst options have had business at 28s. Tin stocks, too, have been lower. Oils have as usual been lifeless. Elsewhere in this issue it is announced that the African Oil Corporation have a substantial increase of capital in view, but a notice to this effect published in the Press does not seem to have aroused much interest. On High 'Change on Thursday New Modders were dealt in at 64s. 3d. and all other gold stocks were correspondingly weak. After High 'Change on Thursday the market took a turn for the better and this improvement was maintained during the afternoon. Frank Smiths were markedly better and improved to 13s. 6d. sales. Other afternoon quotations were: Consolidated Diamonds, 39s.; Modder Deeps, 46s.; Frank Smiths, 13s. 6d.; New Modders, 65s. 3d.; Leeuwpoorts, 23s. 9d.; Glencoes, 6s. 9d.

	Fri., 30th.	Mon., 3rd.	Tues., 4th.	Wed., 5th.	Thurs., 6th.
Anglo-Amer. Corp	37 0	—	33 0*	33 0	32 6*
Apex Mines	6 9*	6 9*	6 10*	6 10*	6 9*
Aurora Wests	5 0†	5 0†	5 0†	—	4 9†
Bantjes Consolidated	3 0	3 0*	3 0*	3 0	3 0*
Brakpan Mines	55 9*	55 0*	50 0*	51 3*	52 6*
Breyten Collieries	—	—	8 0*	8 0*	8 0*
Brick and Potteries	4 6*	5 0*	—	—	5 0*
Bushveld Tins	1 6	1 1*	1 1*	1 3*	1 3*
Cinderella Cons.	6 0†	—	—	6 0†	—
City and Suburbans	6 6	6 6*	6 9	6 6*	6 6
City Deeps	51 0	47 6*	51 3*	50 0*	47 6*
Clydesdale Collieries	23 3*	23 0*	22 6*	23 0*	24 0
Con. Langlaagtes	18 6*	18 6*		17 6*	
Con. Main Reefs	11 9	11 3	10 9*	10 10*	11 3*
Con. Mines Selection	27 0*	27 6*	27 6*	27 6*	—
Coronation Freeholds	1 1*	1 6*	1 5*	1 4*	1 9†
Coronation Syndicates	—	14 0†	14 0†	14 0†	14 0†
Crown Diamonds	11 6*	11 3*	11 3†	10 9	11 0
Crown Mines	—	60 0†	55 0*	54 0	52 6*
Daggafontein Mines	15 6*	15 0*	11 6*	15 3	11 5*
Do. Options (4 yrs)	1 0†	1 0†	—	0 6*	—
East Rand Coals	2 6*	2 3*	2 4*	2 4*	2 5*
East Rand Deeps	1 0†	1 0†	1 0†	—	1 1
East Rand Props	8 0*	7 6*	7 6	7 6	7 3
East Rand Debentures	£72*	£72*	£72*	£72½*	—
Eastern Golds	1 0*	1 0*	1 0*	—	—
Frank Smith Diamonds	14 3	14 0	13 9	12 6	12 0
Geduld Props.	45 0	44 0	43 0	43 0	43 0
Ginsbergs	1 0*	—	1 0*	1 0*	—
Glencairns	1 0*	1 1*	1 0*	1 1*	—
Glencoe Collieries	5 0*	5 6*	6 0*	6 3	6 0†
Glynn's Lydenburgs	15 6†	—	16 0†	16 0†	15 6†
Government Areas	86 3	85 6*	85 3	81 0*	81 6
Hume Pipes	27 0†	—	24 6*	24 0*	25 0†
J'burg Board of Executors	37 6*	37 6*	37 6*	37 6*	37 6*
Kaalfonteins	0 8†	0 6	0 6*	0 6*	0 6*
Klerksdorp Props.	2 3*	2 3*	2 4†	2 3†	2 3*
Knight Centrals	4 4*	4 2*	4 3*	4 0	4 6†
Lace Props	10 6*	12 0†	10 3*	—	10 0
Leeuwpoort Tins	25 0*	24 9*	24 9*	24 0	24 0*
Lydenburg Farms	8 6	8 2*	8 0*	8 3*	8 1*
Meyer and Charltons	95 0†	95 0†	—	95 0†	95 0†
Middelvlei Estates	—	1 6	1 6*	1 6*	—
Modder B's	132 6	131 0*	130 0†	128 6	127 6
Modder Deeps	47 0	46 9	46 3	45 6	44 9
Modder Easts	21 9	21 6	21 4½	21 3	23 6
Do. Options (3 years)	3 9*	3 6*	3 0*	2 9	2 6
Do. Options (4 years)	8 6	8 3	8 3†	6 6*	7 0
Modder Wests	19 3*	19 0*	19 0	19 0	18 9*
National Banks	—	280 0a	280 0	—	—
New Boksburgs	1 3	1 3*	1 3*	—	1 3*
New Eland Diamonds	70 0*	71 3*	70 0*	—	65 0*
New Era Cons.	9 1*	9 0	9 3*	8 9*	9 0*
New Geduld Deeps	2 3†	—	—	1 10*	1 9*
New Heriots	10 0†	—	9 0†	—	—
New Kleinfonteins	9 1	8 0*	8 0*	8 3*	7 6a
New Modders	69 0	68 3	67 0	65 0	64 6
New Primrose	4 6†	—	4 6†	—	4 6†
New States	26 9	26 0a	25 6*	25 0*	25 6*
New Unifieds	5 9†	5 0†	5 6†	—	5 9†
Nigels	10 0†	—	10 0†	10 0†	—
Nourse Mines	11 0*	—	11 0*	10 6*	—
Pretoria Cements	93 6*	93 6*	93 6a	93 9	91 3
Princess Estates	1 6*	—	1 0a	0 9	0 6*
Rand Nucleus	—	1 3*	1 4*	—	1 3*
Rand Selection Corporation	80 0	75 0*	77 6†	75 0	65 6*
Randfontein Deeps	6 0*	6 0*	6 9†	5 6*	6 0
Randfontein Estates	18 9	18 0*	18 0*	17 6	17 9
Roberts Victors	—	14 6*	14 0*	14 0	12 9*
Rooibergs	9 9*	—	—	8 9*	9 0
Roodepoort Uniteds	4 0†	—	4 0†	4 0†	4 0†
Reuxvilles		20 0	—	19 6	19 0†
Ryan Nigels	3 3*	3 9†	3 3*	—	3 3*
Shebas	3 9†	—	2 9†	2 6†	2 6†
Simmer Deeps	2 6†	2 6†	2 6†	2 6†	2 6†
S.A. Alkalis	—	—	21 0†	20 0†	16 6*
S.A. Lands	4 10	4 9*	4 9	4 9*	4 9*
S.A. Townships	12 0*	12 6	12 0*	13 0†	13 0†
South Van Ryns	8 6*	8 6*	8 6*	8 0*	7 9
Springs Mines	45 9	45 0*	44 9	43 9	43 3
Sub Nigels	15 0*	15 0	14 5*	14 6*	14 9
Swaziland Tins	—	14 0*		—	14 0*
Transvaal Silvers	53 6	53 0	53 0†	50 6†	48 0*
Do. Options	32 6	31 6	31 6†	28 6	30 0†
Transvaal G.M. Estates	12 6*	12 0*	12 6*	12 0	11 0
Van Dyks	3 7†	—	3 3†	3 9†	—
Van Ryn Deeps	83 6*	85 3*	84 6*	80 0*	82 0
Victory Monarchs	—	60 0†	—	60 0†	60 0†
Village Deeps	—	9 6*	—	10 0*	10 0
Village Main Reefs	—	—	—	7 0†	—
West Springs	17 6	17 0*	17 4½	17 0	16 9
Do. Options	3 3	3 3*	—	2 10*	—
Western Rand Estates	5 3*	5 1*	—	5 3	—
Witwatersrands	15 6†	—		17 0†	—
Wit. Deeps	8 3*	8 0*	—	8 6	8 0*
Wolhuters	5 0	3 9*	—	4 0	4 3†
Zaaiplaats Tins	8 10	9 0	9 0	8 6	8 3
Union 5 per cent.	£101½*		£98½a	£98½	£98½

*Buyers. †Sellers. aOdd lots. bEx London.

THE ATLANTIC FLIGHT: SIR ARTHUR BROWN'S VISIT.

Distinguished Aerial Navigator Visits his Friends on the Rand.

The visit to Johannesburg of Sir Arthur Whitton Brown, of Trans-Atlantic fame, during the past week has been of great interest to the engineering world in the Transvaal. Apart from the fact that Sir Arthur Brown was well known personally to the engineering world in Johannesburg before the War, the interest created by his Trans-Atlantic flight in a Vickers-Vimy, the exploit of his courage, excellence of organisation, indomitable perseverance and engineering adroitness, has aroused the whole world to a realisation of the magnitude of the undertaking. Listening to the simple, modest account of the journey as given to us by Sir Arthur Whitton Brown, one cannot help being a little proud of the nation which produces such men as he and the late Sir J. Alcock. There was no kind of boastfulness. He gave the reason for the attempt and recounted how it was that the *Daily Mail*, in the endeavour to stimulate enterprise in aviation, offered a prize for the first air navigators of the Atlantic. He recounted how the general scheme of navigation was perfected and on May 13th it was completed. Much to the discomfiture of those who regard the number 13 with superstitious misgivings, he reminded us that the machine which successfully crossed the Atlantic was the 13th of its class, and was started on the 13th February in the workshops! With great warmth Sir Arthur Brown paid a tribute to Messrs. Hawker and Raynham for their generosity in offering the use of their aerodromes for the aeroplane used, but the size was too small for the Vickers-Vimy machine. Handley Page was well to the front, and in fact the H.P. aeroplane was ready for the flight one day ahead, but after its first flight certain alterations had to be made, and these caused it to be one day late. However, after all the preparations, schemes, and general planning, it was finally decided to start on the 13th June—but the Fates were against the hitherto lucky number for the weather was too boisterous for the start. On the 14th June there was a gale at St. John's, Newfoundland, but by 1.30 p.m. the eventful journey to Europe was commenced by the intrepid voyagers. Three tons of petrol were carried for the journey, and after describing the importance of rapid "acceleration" in order to rise rapidly, Sir Arthur Brown described how, in order to get up to the necessary altitude, the aeroplane was first directed westward, and at 800 feet the course was altered directly to Ireland. The first mishap occurred to the wireless set, but by 4.20 in the afternoon the aeroplane was well set on its journey. About 6 o'clock p.m. the exhaust pipe from the engine burst and the flames from the engine exhaust unfortunately, in consequence of the broken exhaust pipe, played upon one of the bracing wires. Steadily progressing and mounting to a height of 5,000 feet, the machine was directed through a thick mass of clouds until a clear way was reached where a layer of clouds was above the machine and another below. Still on the voyagers held their way, and by midnight the aeroplane had reached a point about halfway across the Atlantic. About 12.31 the clouds began to clear away, but by 3 o'clock the dense masses of vapour again began to collect and nothing of the horizon could be seen. In calm, quiet manner Sir Arthur Brown then told us how they found, whilst in the clouds, the aeroplane had got into a "spin": at 350 feet above the water the ocean came into view, but it then appeared to be as if the bank of water was at one side of the aeroplane, "just like a wall." Matters were then rectified and at only 50 feet above the water full control was regained and they then sailed away, climbing higher and still higher, until 11,000 feet had been attained. At this level another trouble arose due to the rain and sleet having got into the hinges of the ailerons. Then the rays of the sun began to peep through the clouds and, with joy, the aeroplane was found to be only 120 miles away from the Irish coast. In less than an hour some islands were sighted off the coast and what appeared to be a good landing place was chosen, for it was just outside the "wireless" station. It was, however, not such a nice place as it appeared to be. Thus in simple words the account of one of the most memorable feats of engineering, bravery and endurance was recounted. Sir Arthur referred in affectionate and sympathetic manner to his associate on the voyage. He also gave us the impression that the aeroplane would only be used for comparatively short journeys, 500 miles or so. The great amount of energy required to provide the necessary lifting power entailed the carrying of tons of petrol, which could in the case of airships be largely dispensed with. The "lighter than air" airship could use all its petrol for propulsion, but of course the capital cost of the "airship" was far in advance of that of the aeroplane. No doubt the greatest success in working with aeroplanes would be to work in relays. Sir Arthur Brown discussed with us the important work to be done in Africa. He pointed out how letters could be sent from Pretoria or Johannesburg, carried directly west and then by seaplane intercept the homeward bound steamers several days after leaving Capetown, thus saving many days in the time now required for delivery of the mails.

Sir Arthur Whitton Brown.

Altogether the conversation was a delightful one—the utterance of a modest gentleman. These—Sir J. Alcock and Sir Arthur Whitton Brown—are the types of men that have made Great Britain what she is. Frobisher, Blake, Cook, Scott, and hundreds of other heroes have names which will occur to remind us of the great exploits of the past. The great stretches of the future lie before us, and the stream of life bears on it the intrepid, courageous, and noble voyagers to whom our visitor, Sir Arthur Brown, is a splendid example and guide. We understand he is returning to Europe and we take this opportunity of wishing him, on behalf of the whole engineering profession, all the best desires of his heart, for it is rare indeed that we have the opportunity of meeting in Johannesburg so courteous, simple and modest a hero.

P.O. Box 3807.

ROCKWOOD PRESSED STEEL UNIONS

H. ALERS HANKEY - - - Sole Agent.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Gold Premium and the Lower Grade Mines—Excellent Claim Pegging—Bar Iron and Steel—Big Progress in the Transvaal Oils and Colours—No Plate Glass—Brushware Very Dear—Wall Paper still Soaring.

The gold premium and the lower grade mines are the burning questions of the hour. Undoubtedly they are serious questions and create consternation amongst merchants. But thanks to the attitude of the Chamber of Mines and also the various Mine Workers' Associations, the subject is being tackled in a sensible fashion. Hence a much brighter outlook, compared with what would have happened if the parties concerned, ostrich like, had put their heads in the sand and bemoaned their ill-luck, instead of being up and doing. Although it has been sad to relate that nearly 150 white men have voluntarily retrenched themselves at the Aurora West, George Goch, and now Luipaardsvlei and Princess, yet the labour people must be congratulated, as it has all been done without fuss and bother or acrimonious meetings. And this under the very nose of the excitement connected with the May Day Meetings. As a set off against this atmosphere, it is said on very excellent authority that a prospector pegged off fifty claims on Vogelstruisfontein at a cost of £12 10s. and sold them for several thousand pounds, and that happened since Christmas. As regards claims, some 800 to 1,000 have been pegged off in the Witwatersrand area during the present year. The consternation previously referred to is not only connected with the mining industry, but also with the exaggerated ideas of the happenings over the Profiteering, Rent and Merchandise Bills before Parliament. What has happened and what we are now suffering from is over speculation on the Stock Exchange and the total absence of speculators in the property and mining material markets. For example, during this week at an auction sale most of the properties were withdrawn and business went very flat, with the consequence that properties pressed for sale went somewhere about 10 per cent. below what was considered the value of three months ago. For instance, a speculator cleared a thousand pounds over a Parktown house on the ridge, without even passing transfer, and on Tuesday a similar house went begging in the absence of speculation. In fact, Johannesburg is a poor place to live in when people have to be content with taking in "one another's washing."

BAR IRON AND STEEL.

The iron and steel position is altering, on account of the Transvaal factories coming into serious competition with the oversea products.. For example, an importing merchant says that he is selling oversea mild steel from stock at the same price it is now f.o.b. in England. He considers this advisable, as in these days of high prices, users accept the article which is the cheaper—that is the Transvaal's. There is still an excellent demand for steel plates which are said to be very scarce and no doubt there is a shortage in most of the thinner sizes. But when the general market was tested by tenders on the Exchange through indents from Kimberley, these were all supplied, so much so that eventually double the original orders were booked. This, however, is rather a proof that steel plates are on the scarce side, as Kimberley protected itself by securing the extra quantity when offering. Turning again to the subject of local supplies, the Union Steel Corporation at Vereeniging supplied during the last five years the reinforcing rods for nearly all the bridges constructed in South Africa. For the mines the corporation have supplied tube mill bars, rails of 16, 20, 25 and 30 lbs. per yard, fish plates, sleepers and angles, flat, round and square bar steel, steel castings weighing up to 6 tons, crusher parts, engine parts, transmission machinery, skip wheels and truck wheels; and also in the early part of 1919 the Corporation received a contract from the mines for the supply of 10,000 tons of shoes, dies, rails and tube mill bars to be supplied at the rate of 300 tons per month. Some twelve months, or may be two years, ago one could not enthuse over much on the Transvaal iron and steel productions, because the bars were not always consistent. This has been gradually altered, thanks to the initiation of the Pretoria pig iron works, as the use of South African pig iron for the production of steel is growing very much. The pig iron is also now obtained from the Vereeniging works, from its blast furnace, smelted from South African iron ore, with South African coke, and fluxed with South African limestone. The Pretoria ironworks is doing quite well, having, in a measure, got over its initial stages; and then there are the Newcastle ironworks getting ready for a very decent output in the near future. Therefore, under all these circumstances, it is not surprising that the Johannesburg merchant referred to is selling at a small profit, without the chance of replacement at present oversea values. Whilst it cannot be admitted that the gold industry is under any serious cloud, yet with the immense quantities of coal and iron, and the progress already made in that direction, no one in South Africa need be despondent regarding our great future.

C. D. LUCAS & B. E. WOLFE
MINING ENGINEERS.

Permanent Buildings,
Phone 4368.
P O. Boxes 6301 and 537.
Johannesburg.

EXAMINATION RESULTS.

MANAGERS' EXAMINATION held January, 1920.—We obtained no less than **NINE** passes from **ELEVEN** Entries.
This constitutes a percentage record for this Examination.
SURVEY EXAMINATION held November, 1919.—SIX of a total of **SEVEN** Passes were obtained by our Students. All other coached men failed to pass.
OVERSEERS' EXAMINATION.—We are **AHEAD** of all coaches with passes 1918 and 1919.
Write for particulars of our **up-to-date** Tuition.

Ministry of Munitions.

HIGHEST GRADE

Huge purchase from the British Government of the very best quality Bar Iron and Steel, Spring Steel, High-speed Tool Steel, and many

THE WORLD

Tons of Polished Brass and Copper Sheets, Tubes, Rods, and Firebox Copper. 1,000 Tons, approximately of Flats (to 7 in.)

COULD PRODUCE

Rounds and Squares (to 6 in.), Channels, Joists, Tees-Angles, Plates, Bolts and Nuts, Brass and Copper Material now arriving.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

Quotations: Dull steel, solid, 7½d. lb.; hollow 11d. to 1/- lb., and likely to advance rapidly; shafting 7½d. to 9d. lb; brass rods 2/6, and tubing 3/- lb.; wire nails 52/6 to 55/- 100 lbs.; bolts and nuts have advanced 10 per cent. in England.

OILS AND COLOURS.

Turpentine is practically unobtainable in wholesale lots, but when a case is to be had the price is from 195/- to 200/- per 2 4's, which is the highest ever recorded in Johannesburg. Fresh supplies are expected from America in a few weeks, when the price is anticipated to be from 165/- to 175/-. Linseed oil is a little lower in London, but it fluctuates from week to week. The following are some extracts from a trade circular for the current month: Genuine white lead in oil, 110/- per 100 lbs. and 1/3 per lb. English red lead 1s. per lb. 50 lb. kegs. and 1/3 single pounds. Genuine dry white lead 1/- lb. Linseed oils, raw and boiled, 4 Imp. galls 70/- per drum, small bottle 2/3. Genuine spirits of turpentine, small bottle 2/6 and a substitute 10/6 gall. Red oxide in oils, 90/- 100 lbs. Putty in bladders, 9d lb. Roof paints, 70 lbs., 85/-. Ready mixed paints 1/6, but no allowance for quantities as 70 lb. drums are 1/6 per lb. Bitsol 75/- per 10 galls. Best enamel 42/- per gall. Paint remover 27/6 gall. Varnish, 27/6 gall. Brunswick black, 27/6 gall. Glue, 1/3 to 1/9 lb. Alum, 7d. lb. Glass paper, 1/3 doz. Hall's distemper, 9/6 per 7 lb. tin. Lime, best white unslacked, 10/6 about 180 lb. Gold leaf, plain English, 4/6 per book.. Plate glass is so scarce that the insurance people, with all their efforts, cannot replace that accidentally broken. Window glass is coming forward a little more freely, but mostly all sold to arrive, 16 oz., 1/9 and 21 oz., 2/6 per foot. Wallpapers have risen 10 per cent. since the issue of the 1920 pattern books. The advice to buyers is to secure the stocks now on hand. All orders received will be taken in strict rotation. Brushware is becoming very scarce in England. Prices have gone up by leaps and bounds and it is even very difficult to place orders at the high prices ruling. Stocks can be said to be fair in Johannesburg, especially as they are supplemented by the local makers.

TIMBER AND BUILDING MATERIALS.

Deals are 2/2-2/3 per foot and very scarce, brought about by the heavy demand from builders and also manufacturers for making all kinds of moulding and joinery work. Another reason is that a timber ship had to set back into Southampton for heavy repairs, causing a delay of about two months. However, it is now on the way again, therefore some relief may soon be expected. There is a local manufacture of parquet flooring, made in teak, oak, mahogany and other hard woods. It is embedded in reinforced concrete, in blocks of 26 ins. by 26 ins., each dovetailing into the other. An inspection was made at 86, Permanent Buildings, on Wednesday, when several architects and builders spoke well of the design and general scheme of laying floors. The price is about £12 per 100 feet, as compared with about £6 for the ordinary deal flooring.

John Tullis
& Son, Ltd.

16-18,
Commercial
Exchange
Buildings,
Johannesburg

:::

P.O. Box 3524.
Phone 5903.
Telegrams: "CHONATA."

PERSONAL.

Mr. A. R. Sawyer has been paying a visit to the Rand during the week.

* * * *

Major Miller, D.S.O., has been elected President of the Aero Union in succession to Mr. F. C. Sturrock.

* * * *

Lt.-Col. H. L. Templer has resigned from the Ferreira Deep and left the Rand this week on his return to London, where he has entered into partnership with Col. H. H. Johnson as consulting engineers.

The list of certificates issued by the Mines Department for the month ending 30th April, 1920, is as follows:—Mine Overseers (Metal Mines): N. Lawrence, E. V. T. Morgan, F. H. Rogers. Mine Surveyors: V. C. Penny, C. D. Tudhope.

SALISBURY, RHODESIA.

WIGG & JENKINS,

MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.

Gold and Base Metal Properties

FOR SALE AND WANTED.

Correspondence invited

P.O. Box 118. **Telegrams: "WIGG."**

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

OXY-ACETYLENE

WELDING AND CUTTING PLANT MANUFACTURERS.

Complete Equipments.

McGOWAN, WILD & CO.,

"ECONOMIC" WELDING BLOWPIPE, the most Efficient and Economical on the market.

Suppliers to the Trade of all Accessories for Welding and Cutting.

OXYGEN-PRESSURE-REGULATORS, CAST-IRON WELDING STICKS, FLUXES for Cast-Iron, ALUMINIUM, BRASS, COPPER, PURIFYING MATERIAL, TUBING, Etc.

Stockists: JENKINS & CO., Greenmarket Square, CAPE TOWN.

Sole Representatives for South Africa:—

MACLACHLAN & CO.

ATHENIAN CHAMBERS, SHORTMARKET ST., CAPE TOWN.

United Asbestos African Agency,

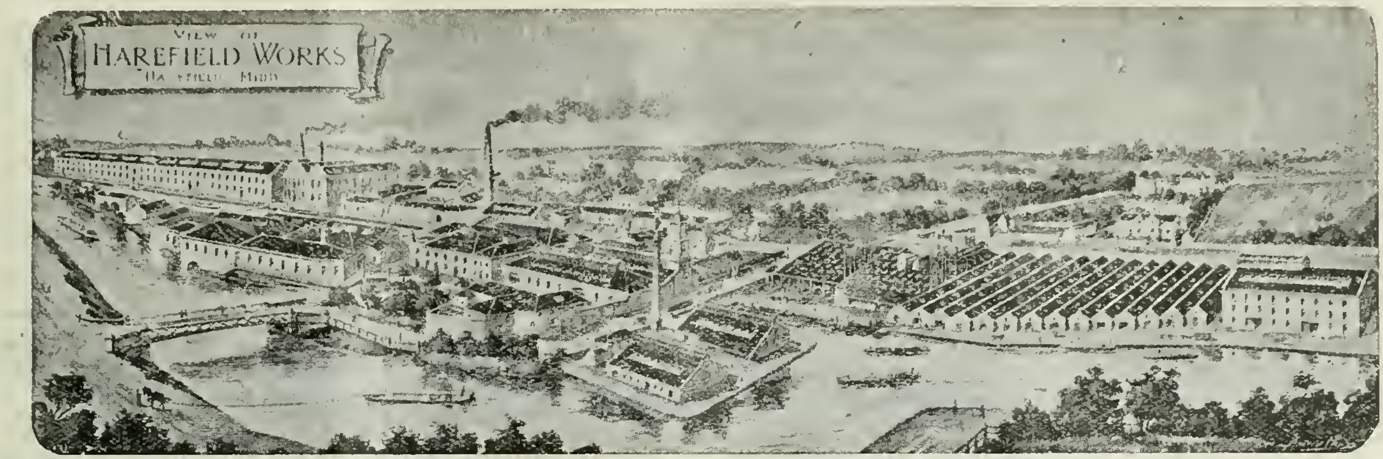
LIMITED.

Telephone No. 345, Central. 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR

BELL'S UNITED ASBESTOS CO., LTD.

(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD).



VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

"GLADIATOR" ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of "Gladiator" Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

WM. HODGSON & SONS

(Weighing Machinists) LIMITED,

MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,

WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—

Geo. GRADOCK & Coy. (S.A.) Ltd.

Box 316. Tel Add. "Ropes" Tel. 539.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

King George's Fund for Sailors.

To the Editor of the SOUTH AFRICAN MINING & ENGINEERING JOURNAL.

Sir,—I am desired by His Royal Highness, the Duke of Connaught, Chairman of King George's Fund for Sailors, to ask if you will be kind enough to support the work that the fund is doing for the sailors, their widows and dependents in distress, and to enclose to you a message from His Royal Highness in this connection. The fund, which was founded in 1917 as a memorial to the gallantry of seamen in the War, is a permanent one, and has met with a generous and world-wide support, that has enabled it to distribute £170,000 for the relief of the seafaring classes during the last two years. Further support is required to maintain this work in the years to come, and in order that you may appreciate the methods of the fund and its administration, I have pleasure in referring you to the enclosed leaflet. The interests of the nations of the Empire are so closely allied to the command of the sea and sea-borne trade that without the heroic services of the men of the Royal Navy and the Merchant Service victory could not have crowned the efforts of the Allies in the anxious years of the Great War. That victory was bought at a heavy price upon the ocean as on the land, and a legacy of bereavement and suffering remains to the seamen and their dependents. King George's Fund, by supporting the activities and enterprise of the Marine Benevolent Institutions, supplies to the seafaring class a succour that the hazardous nature of their calling demands in peace as in war, and in commending it to you personally, His Royal Highness feels confident he is forwarding a cause that will receive your generous support. Awaiting your kind reply, believe me to remain, yours, etc.,

J. N. CLARKE,

Trinity House, London, E.C.3.,
12th April, 1920.

H.R.H. the Duke of Connaught's message is as follows: "I entirely approve of, and am in cordial sympathy with the appeal that the Council of King George's Fund for Sailors is making to those resident in South Africa. It is impossible to speak too highly of the gallantry of our seamen during the War, or of the value of their service in time of peace. The fund is doing a noble work in caring for the seamen and their dependents in distress, and it should be the proud privilege, as it assuredly is the bounden duty, of each and all of us to bear a willing part in supporting it."

The "Kelco" Patent Shovel Point.

To Gold, Copper, Tin and Base Metal Mining Companies, P.W.D., Railways, Municipalities, Quarry Owners, Contractors, Etc., Etc.

CUT YOUR SHOVEL BILL IN HALF.

"BRINGS DOWN WORKING COSTS."

Full particulars from the SOLE AGENTS FOR SOUTH AFRICA:

KELLY & COY., Mining Material Merchants and Contractors,

42, WINCHESTER HOUSE, JOHANNESBURG.

Application for Sub Agencies outside the Witwatersrand invited.

"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in "GACOS" Balata, and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] MAY 15, 1920. [No. 1494.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 251

Topics of the Week:

The Mining Crisis 253
Losses of the Low-Grade Mines 255
The Outlook for the Modder East 256
The Government and the Closing down of Low-Grade Mines 257
Surplus Government Stores for the South African Market 259
The April Output: Group Returns 261
The April Output in Detail 263
Progress of the Modder West 264
The Week in the Sharemarket 267

Engineering Section:

Use of Electricity in Development of the Resources of the Union 268

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 269

Notes and News.

The Gold Premium.

Mr. Samuel Evans will read a paper before the monthly meeting of the Chemical, Metallurgical and Mining Society on Saturday night on the gold premium. Few people are better qualified by study and experience to deal with this question than Mr. Evans, and his paper promises to be full of interest.

* * * *

Dominions Touring Exhibition.

Cable advice from the Department of Overseas Trade, London, to H.M. Senior Trade Commissioner is to the effect that practical difficulties make it impossible for the Dominions Touring Exhibition to leave England as intended in June. It should, however, be clearly understood that the delay is with the object of making the exhibition as representative as possible of British manufacturers. Revised dates for the exhibition at Durban, Johannesburg and Capetown will be announced in due course.

* * * *

The Leicester Mine.

With reference to the Government Notices No. 296 dated the 11th February, 1920, and No. 404, dated 3rd March, 1920, published in the *Union Government Gazette* of the 13th February, 1920, and 5th March, 1920, respectively, calling for tenders for the lease of the abandoned diamond mine known as the Leicester Mine, situate on the farm H.V.8, Division of Barkly West, Province of the Cape of Good Hope, it is notified for general information that one tender has been received by the Department in respect of the above, namely, that of Mr. G. C. Wakeford, of Barkly West, Province of the Cape of Good Hope.

* * * *

A Government Communication.

Mr. H. Warington Smyth, the Secretary for Mines, writes: "I am instructed by the Hon. the Minister of Mines and Industries to inform you that his attention has been drawn to a statement published on page 147 in the issue of your journal dated 17th April, which purports to give the terms of a notice recently issued in London by the Union Government in regard to certain reefs outcropping on certain farms mentioned therein in the district of Heidelberg. The statement as published in your paper does not correctly represent the contents of the statement issued by Government and, therefore, gives a wrong impression as to the action taken by the Government. In order to correct the impression which has, no doubt, been created in some quarters by the statement as edited by you, it is suggested that it would be well to give the correct quotation of the statement as issued by the Government in London—copies of which are enclosed." The Government statement was printed in our last issue.

* * * *

### The State and the Diamond Industry.

In his Budget speech last week, Mr. Burton showed that the extraordinary buoyancy of the diamond trade was reflected in every description of Government revenue connected with the industry, the receipts for the year from this source comprising £1,330,000 from the export duty, £575,000 in the form of income tax, and £728,000 from Government ownership, making in all a sum of no less than £2,636,000 as the contribution of this one industry in a single financial year to the coffers of the State. The Minister paid a passing tribute of respect to the significance of these figures, and commended them to the notice of those who invariably refer to the industry as exhausting the country's resources for the benefit of oversea shareholders. The Treasury expects to get three millions from diamonds during the ensuing year. According to Mr. Burton's figures, the production for 1919 was 50,657 carats more than for the previous year, but the estimated value showed an increase of 1½ millions. The value of the alluvial production is given as £2,740,518, or about 23 per cent. of the whole output, indicating the extent to which the River diggers and others are participating in the recovery from the adverse conditions occasioned by the War.

The C. M. & M. Society Dinner.

Mr. J. Gray presided over the annual dinner of the Chemical, Metallurgical and Mining Society of South Africa last Saturday night, the first function of its kind since before the War. Notable speeches were delivered by the President, by Mr. H. O. Buckle, by Mr. Duncan, Professor Hofmeyr, Mr. H. A. White, Col. Dalrymple, Mr. Stallard, and Dr. R. P. Mackenzie. There was a large attendance of well-known mining men, and the speeches, which have been more or less adequately reported in the daily papers, were of a particularly high order. The President, the Dinner Committee, which consisted of Messrs. H. S. Meyer and S. H. Pearce, and the new Secretary, Capt. Wallace, are to be congratulated on the success of the evening.

* * * *

The Apex Mine.

Colonel W. Dalrymple, presiding at the annual meeting of the Apex Mines, Ltd., last week, said that the tonnage produced for the year 1919 showed a slight improvement on that for 1918, but owing to the greatly increased cost of working there was a considerable diminution in the profit, which amounted to £15,227 after taking into consideration sundry revenue derived from other sources. The balance carried forward at the beginning of the year was £35,262, and after providing for two dividends of five per cent. each, which absorbed £15,000, and taxation amounting to £1,429, there remained unappropriated and carried to the balance sheet £34,060. Owing to the demands of the unions, working hours were being still further reduced during the current year, and in order to cope with this it was necessary to increase the capacity of the power plant by the addition of a compressor and electric generating set.

* * * *

The Position of the Luipaardsvlei.

Important readjustments involving the retrenchment of 49 white employees have been accepted by the men of Luipaardsvlei Estate. At a meeting with the management the chairman of the company said that the mine last year had in one month made a profit of £30, but that the losses had averaged £1,000 per month, while this year back pay and other things had fairly overwhelmed them, and they were losing heavily every month. The position put to the men by the management was that they should have to carry on with a reduced number of men, or else shut down at the end of the month. The scheme involved the retrenchment of 49 employees of all grades—surface and underground—out of a total of 211 on the mine, and the management expected the tonnage to be maintained, otherwise no benefit would accrue from the new arrangements. They hoped by this means to save £2,000 a month. The management's scheme was accepted almost unanimously, only three men voting against.

* * * *

Rand University Fund.

It is a significant object lesson to those who are raising money for the Rand University that the Universities of Liverpool and Manchester have—contrary to all precedent—lately advertised on a large scale for contributions to their building and endowment funds. Meanwhile it is noteworthy that the Witwatersrand Committee recently announced the receipt of donations of £10,000 each from the De Beers Diamond Mining Company and from the Central Mining and Investment Company. Both these sums have been given for a specific purpose. The De Beers donation is to serve as an endowment of the chair of mining and mechanical engineering at the college. These chairs, which are in future to be known as De Beers chairs (and the holders as De Beers Professors) are the two chairs which were established when the School of Mines was started at Kimberley in 1896, thanks mainly to the support of the De Beers Company. The present De Beers professor of mechanical engineering, Professor John Orr, O.B.E., was a professor at Kimberley in the first instance, while the De Beers professor of mining, Professor J. Cellier, was one of the first students there. The Central Mining and Investment Company has expressed the desire that its donation should be earmarked for a chemical laboratory. This is to be a portion of the main university building scheme at Milner Park, and is to be known as the Central Mining Chemical Laboratory.

"Big" and "Small" Gold Producers in the Union.

The last return issued by the Government Department of Mines shows that the gold "premium" has greatly stimulated activity amongst small mine workers in various parts of the country. Whereas the Transvaal Chamber of Mines gives returns in respect of only 45 gold mining concerns, the statistics issued by the Union Department shows that there were 79 large mines producing gold during March in the Transvaal, and 11 small mines, of which 10 were in the Transvaal and one in Natal, making a total of 90 producing gold mines for the whole Union. The output of the small mines was only 551 ozs., a figure exceeded by any one of several Rhodesian "small mine" workings. Old tailings and reduction sites yielded 395 ozs. and eight alluvial diggers produced 89 ozs.

* * * *

The Mozambique Agreement.

Some time ago a Special Commissioner of this paper on a visit to Delagoa Bay was informed that the agreement with the Union would shortly be broken off. From a question that cropped up in the Assembly this week, it seems that there need be no fear of such a step. It appears that in the House of Assembly Mr. Nicholls asked the Prime Minister: (1) Whether or not the Portuguese Government of Mozambique had given notice to the Union Government to terminate the existing agreement subsisting between the two Governments; (2) what action the Government proposed to take in the matter; and (3) whether or not the House would have an opportunity of debating the question before any definite action was taken. In reply, General Smuts said: (1) The answer is in the negative; (2) the Portuguese Government has proposed that a discussion on the existing treaty should take place; (3) it is not possible to say whether any change in the existing treaty could be made in time to submit it for the discussion of this House.

* * * *

The late Hennen Jennings: An Appreciation.

Mr. T. A. Rickard writes in his paper the following notable appreciation of the late Mr. Hennen Jennings: Hennen Jennings died on March 5 at Washington, after a long illness. He was born at Hawesville, Kentucky, in 1851 and graduated from the Lawrence Scientific School at Harvard in 1877. After graduation he came to California and became associated with Hamilton Smith, H. C. Perkins, and Ross E. Browne. He was engineer successively at the North Bloomfield and New Almaden mines in California. In 1886 he married the daughter of John C. Coleman, one of the two brothers that owned the Idaho mine at Grass Valley. A year later he went to Venezuela as manager of the El Callao mine, remaining there two years. In 1889 he went to the Rand, as engineer to Jules Porges & Co., the predecessors of Wernher, Beit & Co. He became consulting engineer to the firm, retaining this important position until his retirement in 1905, spending the last seven years in London, where he was a recognised leader of the profession. In 1903 he was elected president of the Institution of Mining and Metallurgy; in 1904 he was re-elected and also received the gold medal of the Institution in recognition of his efforts on behalf of technical education. On his return to the United States in 1905 he settled at Washington and served as consulting engineer to the Conrey Placer Co. in Montana, an enterprise in which, through a bequest, Harvard had acquired a large financial interest. In later years he was consulting mining engineer to the U.S. Bureau of Mines and in 1918 he undertook an investigation of the gold-mining industry. His career was long, useful, and full of honour. A man of keen public spirit, he took a leading part in the efforts to promote technical education in South Africa, England, and the United States; he gave his help to the betterment of the profession and to the welfare of all those engaged in mining. A man of cautious, rather than of brilliant, mind, he proved a rarely sagacious adviser to the financial house identified with the biggest operations known to the modern world and steered it safely through periods of dangerously speculative excitement. He was loved by many and respected by all. To his son he leaves an honourable tradition and to his friends a happy memory.

The Jupiter's Latest Report.

In the three months ended March 31, the Jupiter made an estimated net loss of £2,137. The amount spent on Capital Account during the quarter was nil. The report says: "It should be noted that the net value of the gold as included in the above figures has been calculated at £5 7s. 8d. per fine ounce, and does not include gold realisation costs which, owing to abnormally high bank charges were estimated at about 6s. per fine ounce. In the previous quarterly statement the value of gold was put as usual at say 85s. per fine ounce, less realisation charges, making the net figure 83s. 10d. per fine ounce. Disorganisation consequent upon the strike among the white employees in December last, as well as scarcity of native labour affected the operations at the beginning of the quarter. Native labour shows an improvement in numbers, viz.:—2,431 boys for the quarter as against 2,279 for the previous quarter. A further improvement has taken place since the end of the quarter, as there are now some 2,800 boys employed, but as this number represents only about 67 per cent. of the full complement, the mine is still suffering from shortage of native labour. As from the 1st February, 1920, the monthly accounts reflect the full extent of the increased pay to white employees, which increased pay was agreed to between the Chamber of Mines and the Labour Unions owing to the high cost of living. The increased white wages and the drop in the premium realised on the company's gold output, make it clear that under existing conditions the future prospects of the mine are very doubtful. In the meantime careful consideration is being given to possible ways and means whereby operations can continue to be carried on, but in any event it appears certain that whatever ways and means are found will necessitate the co-operation of the white employees.

* * * *

Princess Estate Closing Down.

Not altogether unexpected was the closing down of the Princess, announced in the following official note: "It is with much regret that the board of directors has decided to cease mining operations on the company's property, involving the stoppage of crushing in the near future. For this, unforeseen delays in development, decreasing yield and large increases in costs are responsible. The condition of the principal shaft in December, 1917, was such that shaft sinking was impossible and continuous hoisting operations were jeopardised. The company was reconstructed and working capital was provided to alter completely the shaft from compound to vertical and incline, and to sink the latter to the 15th level. It was estimated that the completion of this programme would result in increased hoisting capacity from the more promising section of the mine, with a considerable saving in costs and prolongation of operations. The floods at the beginning of 1918 and the influenza epidemic at the end of that year, with consequent disorganisation of the native labour force, so interfered with shaft sinking that development could not be started on the 14th level until the middle of 1919, with the result that the ore reserves have shrunk in quantity to such an extent that an adequate monthly tonnage can no longer be obtained. Further, since the end of last year, the yield has fallen to 22s. 6d. per ton crushed as compared with 25s. 9d. in 1919. This, and particularly the continued high cost of mining supplies, the further concessions in pay and privileges recently made to European and native employees, in common with the rest of the mining industry, have vitally altered the prospects of the mine. Compared with the year 1917, the quarter ending 31st March, 1920, shows an increase in working costs of 7s. 5d. per ton milled. As a result of the foregoing causes, the loss, after allowing for gold premium, for the first four months of this year is about £20,000. The possibility of working at a profit for a short period on a smaller scale has been considered in detail, but the value of the ore reserve blocks is too uniform to admit of selective mining. It will be realised, therefore, that the board has had no option but to come to the conclusion first mentioned."

TOPICS OF THE WEEK.

THE MINING CRISIS.

SINCE last we wrote on low-grade mines the situation has taken a serious turn, and several more mines have closed down and others have been brought to the verge of doing so. The warning quoted in these columns from the Secretary to the Federation of Trades came not a moment too soon, and only too opportunely confirmed the repeated admonitions on the subject from the President of the Chamber of Mines and the heads of the various groups. "The mining industry," said Mr. Patrick Duncan at the Chemical, Metallurgical and Mining Society annual dinner the other night, "like lots of good men we have known in life, will only be properly appreciated when it is dead." And it certainly seems that the actual closing down of the Jupiter and Simmer Deep has done more to awaken Parliament and the public to the true value of the poorer mines to the community than all that has been said and written on the subject in recent years. Over and over again in these columns have we dwelt on the plight of these mines, and pointed out that shareholders and controlling houses could not be expected to go on running them indefinitely at a loss. Easily could we fill columns with quotations from warnings written as plainly and as sincerely as possible against the coming of the events of the past few days. Appeals to the Government, to the Reef Municipalities, to the men themselves, to prepare and be forearmed have all, apparently, fallen on deaf ears. The facts to-day speak as no words speak; and the position in its plain reality is explained only too clearly in the speech of the Minister of Mines printed in full in another part of this issue. With the gold "premium" ebbing and bank charges on the increase, the question now is what must be done lest worse evils befall the industry. Nobody—not even the Labour people themselves—seriously contemplates the State running the unpayable mines at a loss. The report of, and evidence led before, the State Mining Commission provide a standing monument against the folly of such a course. The only real remedies one can prescribe do not pretend to be new. They have been described in these columns before, but they have never seriously been tried. First, the Government must help, not so much by appointing Commissions as by giving effect to the recommendations of those it has appointed. The interim report of the Low Grade Mines Commission is a notable case in point. Since that report appeared, now many months ago, nothing, we believe, has been done by the Government to give effect to its recommendations. Instead, taxation, chiefly through additional railway rates, has been increased. The fact is, the Government has fallen into the habit of thinking that the mining industry—like the Shakespearean lady—"protests too much." Too painfully are we on the Rand familiar with this attitude of the Government. As another speaker at the C. M. & M. Society dinner the other night put it, the Government regards the Rand as a place to turn out gold wherewith to build universities elsewhere. The mining industry after all the years still remains a milch cow, as it was under the Kruger *régime*, only now it has to supply nutriment to four Provinces instead of one! The truth is the Government, in several different ways that have been pointed out to it *ad nauseam*, can so lighten taxation and other burdens on the industry as to relieve the plight of the poorer mines. Secondly, the men themselves can help materially to ward off the worst dangers that threaten. Already, fortunately, there are signs that they do recognise their duties and responsibilities in the crisis. At meetings along the Reef, held in the past week, men have spoken out boldly for increased efficiency, and the pity of it is they did not do so sooner. On all sides it is admitted that there has been a lamentable falling off in efficiency. The men admit it and the figures prove it. The remedy is obvious and simple. If the men will do their share, and a little bit over, and the Government really take thought as to what it can contribute, the situation may possibly even now be saved from becoming worse.

SIEMENS BROTHERS

& CO., LIMITED

CABLES

AERIAL, UNDERGROUND, SUBMARINE.
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes.
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

PRIMARY CELLS

Fluid and Dry.

WIRES

Rubber Covered. Gutta-Percha Covered.
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-Speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

Representative in South Africa.

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams: "SIEMENS"**

LOSSES OF THE LOW GRADE MINES.

Some Huge Figures—Possible Effect of Closing Down on the Gold Premium.

The decision to suspend crushing operations at a number of low-grade mines has aroused a storm of indignation in Labour circles, but it is exceedingly hard to see that any alternative to suspension of operations at mines like the Simmer Deep, Jupiter and Princess was possible. The only wonder is that these properties have carried on as long as they have. The so-called premium on gold saved the position temporarily, but the added burdens of higher wages, additional taxation, and excessive gold realisation charges have recently swallowed up the whole of the declining premium. It does not seem that the gravity of the position from the point of view of the mine owners or the very heavy losses which the mines have been mulcted in have been adequately appreciated by the general public, and it may therefore be worth while to set on record the losses incurred at several properties during the past two months.

HEAVY LOSSES.

Figures for March and April of this year are as follow:

	March loss.	April loss.
Aurora West	£2,491	£2,119
City and Suburban	19,896	—
Durban Roodepoort Deep ...	2,313	11,317
East Rand Proprietary ...	3,108	12,718
Geldenhuis Deep	1,099	1,892
Jupiter	3,377	5,508
Knights Deep	5,600	5,352
Luipaardsvlei	1,820	—
New Goch	3,313	3,906
New Heriot	2,828	3,835
New Kleinfontein	1,411	4,050
Nourse Mines	—	162
Princess	4,349	6,994
Roodepoort United	5,231	6,503
Simmer and Jack	9,745	5,287
Simmer Deep	12,396	11,153
Village Deep	349	3,541
Totals	£85,332	£84,637

It will be seen that the losses incurred by these mines during March and April amounted to no less than £169,969, a very large sum indeed.

NATIONALIST ANXIETY!

It is decidedly amusing to read that during the debate on the fate of the low-grade mines which has recently been proceeding in the Union Assembly one of the Nationalist members professed anxiety for the gold supplies of the British Empire if the Rand's low-grade mines were compelled to close down! We can hardly imagine that any of our backveld legislators are really perturbed at the prospect of British finance being in any way embarrassed through any action that may be taken in this country, and the probable reason for those crocodile tears falling from Nationalist eyes over the plight of the five or six pennyweight ventures is to be sought in quite another direction altogether. All the same the Nationalist member has touched on a rather important point in connection with the low-grade mines, and that is the effect curtailment of the Rand's production may have on the price of gold. It is clear that a war-worn world cannot be rehabilitated without gold, and by all the laws of supply and demand now that gold has no longer a standard value but is bought and sold in the open market like any other metal, a restriction of output should tend to raise the price. The low-grade mines which are suspending operations and those in jeopardy contribute no small percentage of the output of the Rand and of the world, and it will be interesting to observe what effect cessation of milling by the low-grade mines will have on the gold "premium."

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record*. In January-April, 1920, we secured 14 out of 22 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

CORRESPONDENCE AND DISCUSSION

West End Diamonds.

To the Editor of the SOUTH AFRICAN MINING & ENGINEERING JOURNAL.

Sir,—I shall be pleased if you will be good enough to draw the attention of your readers to Proclamation No. 75, 1920, which appears in the *Government Gazette* of the 7th May, 1920. As the Proclamation reads, there is no mention of the fact that the mine proclaimed is the property of my company at Postmasburg and has only been proclaimed after it has been proved to the Government's satisfaction that diamonds have been discovered in payable quantities. The area proclaimed is in extent 147·13922 claims. Thanking you in anticipation,—Yours, etc.,

C. WOODROW,

(for the South African Townships, M. & F. Corp., Ltd., Secretaries).

Commissioner Street, Johannesburg,
11th May, 1920.

PERSONAL.

Mr. Kenneth Austin has joined the firm of Messrs. Dowson and Dobson, Ltd., and has taken charge of the Mining and Industrial Contract Department.

* * * *

Dr. W. A. Caldecott, of the Consolidated Goldfields, has left on a well-deserved holiday, which it is understood, he will devote to travelling through the country.

Swaziland Tin.

The following are the results of the operations of this company for the month of April, 1920: Concentrate recovered, 24½ tons, 70 per cent. concentrate; estimated working profit (taking tin at £300 per ton), £176; less adjustments in respect of previous shipments, £713; net loss for month, £237.

In the March quarter the Simmer and Jack made a net profit of £9,991.

OUTLOOK FOR THE MODDER EAST.

The Long Underground Connection Completed—Satisfactory Results at the Apex Mill—Screen Assays going Seven Pennyweights—Large Ore Reserve Blocked Out—The Company's Financial Position.

The Apex mill is now engaged in crushing ore from the Modderfontein East, and taking everything into consideration the results being secured are considered satisfactory. There have been numerous difficulties to be surmounted in connection with the long haul from the mine to the mill over the railway line and in the re-establishment of the plant, but we understand that 600 tons a day are at present being delivered into the ore bins and that the assay value of the screen samples is approximately seven pennyweights per ton. As the reduction works had been closely cleaned up by the Kleinfontein Company on cessation of their operations, there will naturally be a considerable absorption of gold, and the plant will take some time to condition. Under the circumstances no declaration of output for the tonnage milled during the remaining portion of April will be made, and the first publication of results will take place at the end of May.

Nos. 1 and 2 Shafts Connected.

In the report for the quarter ended with March last it was stated that the long underground connection between No. 1 and No. 2 shafts should be completed early in May, and thereafter stoping operations can be undertaking. About that time an additional 60 drill air compressor will be erected, and another step completed towards supplying the Apex plant up to its full capacity of 27,000 tons a month. This connection was completed a week or two ago and progress in connection with the erection of the new air compressor is well advanced, so that in the near future the company will be able substantially to augment the tonnage of ore delivered to the Apex battery.

Ore Reserves 1,552,700 Tons at 7·6 Dwts.

Reference to a plan of the property shows the length of the connection between Nos. 1 and 2 shafts and the importance of linking up these two vital points of attack in the company's claim area. In view of milling having now commenced at the Apex plant, and taking into account the fact that the three-year option is now exercisable and will expire on the 1st July next, it was deemed advisable to make a special calculation ot the ore reserve, so that shareholders might be placed in possession of the fullest information at this date. The reserve has accordingly been measured and is found to consist of 1,552,700 tons of an average value of 7·6 dwts. over a stoping width of 55 inches—a highly satisfactory position at this early period in the history of the mine. As the working points in the mine have now become so numerous, it is considered inadvisable to give the detailed results from each separate development face, as has been the custom in the past, and that a summary will suffice to indicate the position of the mine. The following tabulation therefore summarises the results of development for the quarter:

Reef Exposures for Quarter ended 31st March, 1920.

SHAFT.	Total Footage.	Footage on Reef.	Payable Footage.	Percentage Payable.	Average Width Inches.	Average Value Dwts.	Inch. Dwts.
No. 1 Shaft ...	4,644	3,330	1,490	44·7	27	14·5	391
No. 2 Shaft ...	1,411	1,020	345	33·8	24	16·3	392
No. 3 Shaft ...	1,048	965	665	68·9	27	13·2	357
Tls. & averages	7,133	5,315	2,500	47·0	27	14·1	382

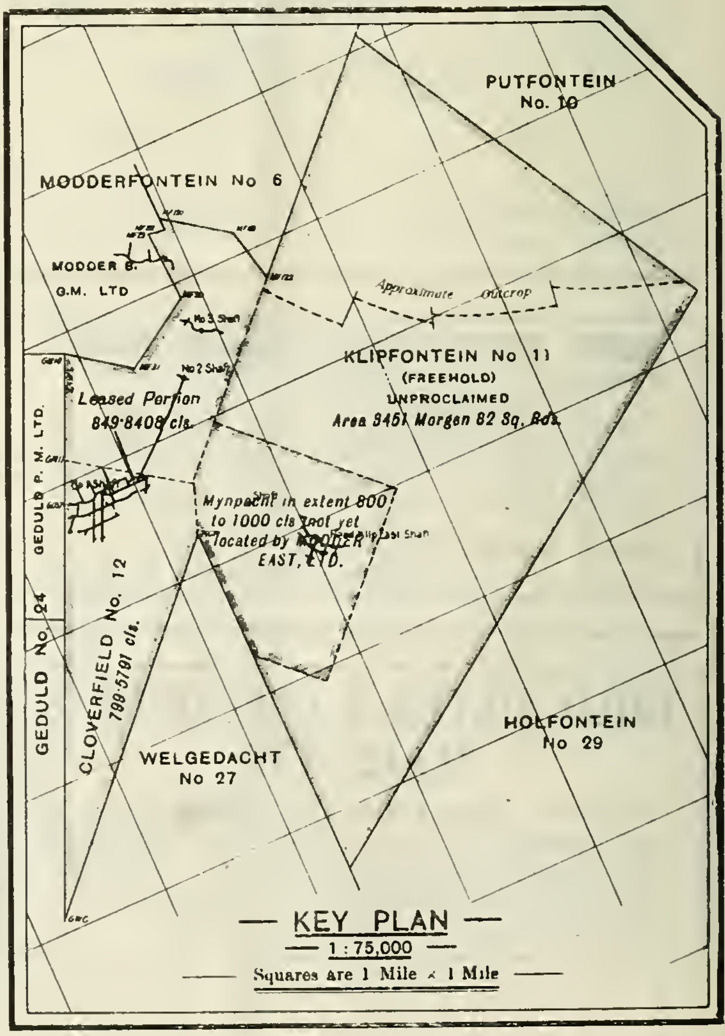
The results to date are shown hereunder:

SHAFT.	Total Footage.	Footage on Reef.	Payable Footage.	Percentage Payable.	Average Width Inches.	Average Value Dwts.	Inch. Dwts.
No. 1 Shaft ...	34,254	20,241	10,287	50·8	22	20·8	458
No. 2 Shaft ...	3,217	2,520	1,655	65·7	26	16·3	425
No. 3 Shaft ...	5,870	4,370	3,075	70·4	26	14·6	379
Tls. & averages	43,341	27,131	15,017	55·3	23	19·0	438

The above figures do not include the vertical shaft sinking in Nos. 2 and 3 shafts, or the driving from the Modderfontein B.

Financial Position.

The expenditure incurred by the company during the quarter ended with March last amounted to £124,360, of which £72,438 was expended on development. The present capital of the Modderfontein East, Ltd., amounts to £752,041 in £1 shares, of which 61,582 shares are in reserve. Under the articles of association the directors have power to increase the capital from time to time by an amount of £747,959 by the creation of 747,959 new shares of £1 each, provided that such shares may only be created for the purpose of meeting negotiable options as under: On 373,979 shares up to 1st July, 1920, inclusive, at 21s. 3d.; on 373,980 shares up to 1st July, 1921, inclusive, at 22s. 6d. In addition to the aforementioned power the directors, at an extraordinary general meeting of shareholders, held on the 15th May, 1919, were further empowered to increase the capital of the company from time to time, without reference to shareholders, by the creation of not more than 500,000 shares of the nominal value of £1 each for the purpose of meeting and satisfying any conversions of debentures, and to issue such shares from time to time as and when required. Should all the abovementioned options on shares be exercised and all the debentures be converted into shares, the capital of the company will amount to £2,000,000, of which an amount of £61,582 is in reserve. Taking everything into account, the company's outlook appears to be a good one and its entry into the list of crushing mines at this early date in the Modder East's history is an achievement upon which the management is to be congratulated.


PUTFONTEIN No. 10
MODDERFONTEIN No 6
MODDER B. G.M. LTD
No 3 Shaft
No 2 Shaft
Approximate Outcrop
KLIPFONTEIN No 11 (FREEHOLD) UNPROCLAIMED Area 3451 Morgen 82 Sq. Rds.
Leased Portion 849·8408 cls.
GEDULD P. M. LTD.
Mynpacht in extent 800 to 1000 cls not yet located by MODDER EAST, LTD.
East Shaft
GEDULD No. 24
CLOVERFIELD No. 12 799·5791 cls.
WELGEDACHT No 27
HOLFONTEIN No 29
— KEY PLAN —
— 1 : 75,000 —
Squares are 1 Mile × 1 Mile

THE GOVERNMENT AND THE CLOSING DOWN OF LOW GRADE MINES.

Important Commission to be Appointed—Full Inquiry Promised Statement by Minister of Mines.

The debate on the closing down of certain of the low-grade mines of the Rand during the week drew from the Minister of Mines the following important statement:

The Minister of Mines said that the object of the discussion was to draw attention to the closing of certain mines, and he agreed that such a discussion was of importance. But the seconder had used the opportunity of throwing mud and discussing the whole question of the low-grade mines. It was he (the Minister) who had called for the appointment of the Select Committee. Since then a Commission had been appointed whose report came into his hands last week, and hon. members might have postponed their criticisms until they had the facts in their possession. This Commission had taken evidence for eight months. Who, he asked, was to pay if the Government worked these low-grade mines? He wondered if Mr. Munnik and Dr. Visser were speaking for the National Party, and he inquired whether that party was prepared to subsidise these low-grade mines. Owing to the closing of the Jupiter and Simmer Deep, the general policy of the Government had been to prevent a large number of the mines from closing. At the same time they knew that a number of mines were getting worked out in the past, and nothing could keep them going. Then there were other mines with such low-grade ore that, on account of the heavy working costs, they had been unable to make both ends meet. The heavy premium on gold during 1919 had kept things going, but the great drop in the premium caused by the restoration of the exchange between England and America and the heavy cost of 8½ per cent. on bringing out money to South Africa had again tended to remove the temporary advantage. The longer the period of closing was spread out the better.

The Latest Information.

The latest information he had from the Government Mining Engineer, received that afternoon, was as follows: "As far as I can ascertain this morning the approximate number of employees discharged at date are: Simmer Deep and Jupiter, 150; Princess, 30; Aurora West, 30; New Goch, 60; Kleinfontein and Kleinfontein Extension, 30; East Rand Proprietary, 30. The numbers likely to be discharged week by week cannot be closely forecasted." The policy of the department had always been that, before retrenchment was decided on, the management should be encouraged to meet their white employees and lay the whole position before them, and so far as he was aware the result had invariably been that the men had accepted the position as laid before them. Further, the Government encouraged the Chamber of Mines to meet representatives of the Mine Workers' Union. A meeting had taken place last week, when the whole question was discussed and when the appointment of works committees to meet the management was also dealt with. The interim report of the Low Grade Mines Commission laid stress on the reorganisation of underground work, and advised that conferences should be held between employers and employees to see what could be done to get a full day's work out of the native.

Inquiry to be Held.

The Gold Law provided for an inquiry after the mine was closed, but he agreed that that section rather closed the door after the horse had gone, and therefore he had pressed that three months should be given before a mine closed. He had arranged that in every case an inquiry should be held, and such inquiry was to be held at present on the Jupiter and Simmer Deep, conducted by three men, a Government mine inspector, the engineer of the company, and a representative of the employees. The Minister went on to say that the Simmer Deep had given notice last week, and that mining companies had expressed their willingness to comply with the provisions of three months' notice and to the inquiry being held in spite of the fact that they were not compelled to do so. He contended that the mining companies had thereby shown their *bona fides*. He assured the House that the Government would do everything in its power to prevent the mines from closing without notice. Without proper consideration, no mines had closed, and he did not think that the Government could do any more at this stage.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

Sole Agents: **KELLY & CO.,**

The "KELCO" People.

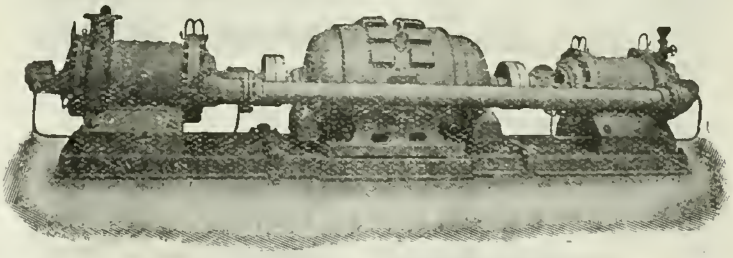
Box 5260. Phone 4333.

SULZER

HIGH-LIFT CENTRIFUGAL

PUMPS.

For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:

RICE, WILSON & HERD,

86, 87, 88, 96, Standard Bank Chambers, Commissioner St.

P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.

Also South African Agents for

CALLENDER'S CABLE & CONSTRUCTION CO., LTD.

BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

THE BRITISH GENERAL ELECTRIC CO., LTD.

Corner LOVEDAY & ANDERSON STREETS,
:: :: JOHANNESBURG. :: ::

P.O. Box **2406.** Telephones **4242** & **4243.** Telegrams : **"CURRENT, JOHANNESBURG."**

SOUTH AFRICAN BRANCH OF

THE GENERAL ELECTRIC CO., LTD., England

Capital £6,000,000.

Manufacturers and Suppliers of Everything Electrical.

WORKS :

WITTON ENGINEERING WORKS,
Witton, Birmingham.

BIRMINGHAN CARBON WORKS,
Witton, Birmingham.

STEEL CONDUIT WORKS,
Witton, Birmingham.

PEEL-CONNOR TELEPHONE WORKS,
Salford, Manchester.

ILEENE WORKS,
Birmingham.

LEMINGTON GLASS WORKS
(Lamp Bulbs, etc.) Lemington-on-Tyne.

EXPRESS LIFT CO., LTD.,
London.

FRASER & CHALMERS ENGINEERING WORKS,
Erith.

WATSON & SONS (Electro Medical) LTD.
London.

SALFORD INSTRUMENT WORKS,
Salford, Manchester.

PIRELLI GENERAL CABLE WORKS,
Southampton.

ROBERTSON LAMP WORKS,
Hammersmith, London.

OSRAM LAMP WORKS,
Hammersmith, London.

UNION STREET WORKS,
London, S.E.

The above works find employment for over 15,000 people.

Branch Office and Stores: 89, Castle Street, Cape Town.

Agencies at Durban, Port Elizabeth, East London, Pietermaritzburg, Bulawayo, Delagoa Bay, Beira, Mozambique, Dar-es-Salaam, Zanzibar, Mombasa, Nairobi.

SURPLUS GOVERNMENT STORES FOR THE SOUTH AFRICAN MARKET.

Does the public of South Africa realise that the Imperial Government have still vast quantities of material of all kinds for disposal? From Lord Inverforth's recent speech it appears that the Surplus Stores Disposal Board have sold over three hundred million pounds' worth of stores during the last year, but vast stocks still remain to be disposed of. South Africa is short of material of various kinds; for example, light railway material, fencing wire, etc. Surely this is the time for the South African merchants and others interested to buy from the Disposal Board. This material can now be unloaded on the market with a minimum disturbance to normal trade arrangements. In many lines manufacturers are not in a position to give delivery for many months and therefore the material for disposal can now be absorbed without inconvenience to the manufacturers. This will not be the case in a few months' time. The present high rate of exchange is all in favour of the purchase of fairly considerable stocks.

Export Department.

Complaints having been received that the normal machinery of the Disposal Board did not meet the requirements of the exporters, a special Export Department staffed by business men, experienced in the market with which they deal, has been formed, and we are assured that if exporters will communicate with this department they will find their inquiries dealt with in a businesslike manner. The object of this department is not solely to facilitate the sales to the Colonies and foreign countries, but also to equalise distribution throughout the world. It is obviously not desirable that the world's whole available stocks of certain materials should fall into the hands of a limited number of European speculators.

What Must Be Done.

If this department is to effect its purpose it is essential that it should have the support of the buying communities abroad. There are obvious difficulties in the case of South African consumers desiring to purchase from the Disposal Board. The Imperial Government can give no rigid specifications, sample or guarantee of the material they have for sale. It has to be inspected on site in Europe, after which the would-be purchaser either tenders for it at an auction or puts in a special tender. The London buying offices of most merchants are normally tied to definite indents in which both the quality and quantity of the goods required is definitely specified. If full advantage is to be taken of the possibilities of business with the Disposal Board it is essential that London buyers be given considerable latitude. The most satisfactory arrangement of course is if a principal from South Africa can himself get in touch with the Disposal Board in England. The essential point is that the Imperial Government in forming the special Export Department of the Disposal Board have done their best to provide machinery for supplying their surplus stores to the Colonies. It would now appear to be the task of the consumers to so arrange their machinery of buying that South Africa does not lose its share of the Government stores which are now for disposal and which it so urgently needs.

Surplus Stores.

In the latest report issued by the Surplus Government Property Disposal Board mention is made of the following goods which are for disposal, and which are suitable for overseas purchasers: Furniture, including bedding and medical stores, hospital furniture and equipment, carpets, office furniture, canteen equipment, household furniture, and general camp furniture and equipment. Towels, household linen, wood fittings, coal scuttles, spoons and forks, tea urns, table glass, fire buckets and cleaning gear such as brushes, etc., are also included. Storage bins of all types are for sale at fixed prices or by auction. Plant and machinery of almost every type are for sale by auction, the goods being situated at various works all over the country. Such machines as mortar mills, concrete mixers, crab winches, portable engines, rotary fans or compressors, electric lifts, electric motors and generators of all sizes, engineers' machine tools, wood working machinery, and cast iron columns, steel girders, and general stores are for disposal. A number of items such as internal combustion marine engines and vertical and horizontal steam engines (by makers such as Robey, Tangyes and Marshall), Lancashire boilers, lift and force pumps, oil and gas engines, electric generator sets, galvanised iron wire No. 11 gauge, portable electric drillers, electric cells, steel wire, wall spikes and drying engines are for sale by private treaty. In the railway material section a large number of steam locomotives are offered in the following gauges—4 ft. 8½ in., 3 ft. 6 in., 2 ft. 6 in., 2 ft., 60 cm. Fireless locomotives of 2 ft. gauge, 160 lb. pressure, practically new, are offered, and a large number of 60 cm. gauge wagons and trucks. Road bridges of timber and steel of various types as used for military operations are for sale and tenders for them are invited. Lifting bridges with a safe load of 80 tons distributed, roadway 10 ft., span 22 ft., which will carry all traffic without restrictions, are offered under the same terms. Liversedge portable bamboo bridges made up of bamboo, steel and timber, and supplied in units 10 ft. long by 3 ft. wide and 2 ft. deep, very useful for easy transportation, are for sale. The weight of each unit is 1½ cwt. This bridge has been used during the War for the transport of infantry in single file. Railway construction tools and various kinds of track fastenings in large quantities are awaiting sale. Amongst the locomotives are fifteen 40 h.p. petrol tractors, Simplex type, 60 cm. gauge; twelve side tank locomotives, 60 cm. gauge, steam pressure 160 lb. per sq. in., weight 14 tons; twelve side tank locomotives, 60 cm. gauge, working pressure 178 lb. per sq. in., weight 14½ tons; one Baldwin-Westinghouse mining type locomotive, weight 14,000 lb., suitable for operating on 24-in. gauge, fitted with two 20 h.p. 500-volt mining motors, and trolley pulley and detachable gathering wheel. Dock and wharf equipment includes cranes of various descriptions, steam winches, transporters, stacking machines, conveyors, aerial ropeways, and smaller gear such as lifting blocks. Amongst the small craft are tugs, launches, lighters, sailing craft, lifeboats, and motor craft of various descriptions. Woollen and worsted piece goods and other textiles and leather goods of various descriptions are offered by another section. Many of the above descriptions of apparatus would not in the ordinary way be described as war stores goods and they are in all respects suitable for use for all the normal purposes for which they are usually required. Enquiries in respect of any of these goods may best be made through buying agents in the United Kingdom, but in any case of difficulty the Department of Overseas Trade would undertake to assist enquirers.

FOR SALE

By Tender, a Complete Mining and 5-Stamp Milling Plant, including Buildings of Wood and Corrugated Iron.

The above is situate on a property about 17 miles from Bulawayo and is accessible by either Cart or Motor Car.

Particulars may be obtained by application to BOX 447, BULAWAYO.

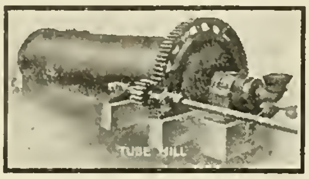
HEAD, WRIGHTSON & CO. (South Africa), LTD.,

P.O. Box 1034. JOHANNESBURG. Telephone 3524.

MANUFACTURERS OF

Mining Machinery, Colliery & Blast Furnace Plants, Structural Steelwork, etc., etc.

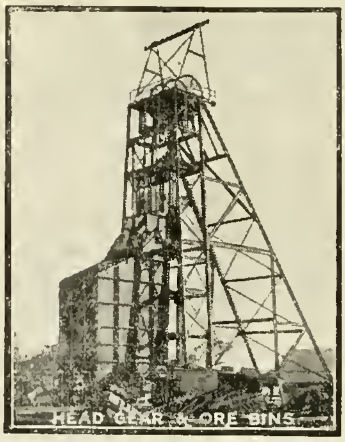
A few of our Specialities—



TUBE MILLS.

GRINDING PANS.

PRECIPITATION BOXES.



HEAD GEARS AND BINS.

STEEL TANKS.

Johannesburg Office: 47-48, Standard Bank Chambers, Commissioner Street.

THE

STRAITS TRADING COMPANY

LIMITED.

HEAD OFFICE **Singapore**
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—

THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF

TIN ORE CONCENTRATES OF ALL GRADES

FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—

THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

THE APRIL OUTPUT: GROUP RETURNS.

Central Mining/Rand Mines Group.

The following are the results of crushing operations of the Central Mining/Rand Mines companies for the month of April:

Company.	Tons crushed	Yield in Fine Gold Ozs.	Estimated Value.	Estimated Profit.	Estimated Working Costs per Ton.
City Deep	60,000	25,012	£118,876	£35,706	27/ 8
Cons Main Reef	47,200	16,870	80,134	8,412	30/ 4
Crown Mines ...	182,000	54,879	260,677	47,696	23/ 4
Dur. Rood. Dp.	20,000	6,362	30,219	*11,317	41/ 6
East Rand Prop.	128,000	34,196	162,433	*12,718	27/ 4
Ferreira Deep ..	32,900	11,224	53,318	9,716	26/ 6
Geldenhuis Dp..	44,400	12,856	61,068	*1,892	28/ 4
Knight Central .	24,400	7,623	36,030	1,378	28/ 4
Modder B.	50,000	23,393	111,118	43,621	27/ 0
New Modder ...	86,000	44,562	211,024	111,590	23/ 1
Nourse Mines ...	38,500	13,534	64,218	*162	33/ 5
Robinson	40,100	9,520	45,225	2,261	21/ 5
Rose Deep	55,800	14,981	71,065	12,824	20/10
Village M.R. ...	16,400	4,833	22,913	546	27/ 3
Wolhuter	30,000	8,668	41,173	4,125	24/ 8
Village Deep ...	46,300	14,393	68,369	*3,541	31/ 0
Tls. & averages	902,000	302,906	1,437,860	248,245	26/ 4

* Loss.

Crown Mines.—Decreased profit also due to lower tonnage and consequent increased costs per ton.

Durban Roodepoort Deep.—Loss due to decreased tonnage occasioned by fall of rock in No. 1 shaft, abnormal expenditure during the month, and the prevailing high working costs.

Modder B.—Decreased profit also due to increased working costs.

New Modder.—Decreased profit also due to lower tonnage.

Wolhuter.—Decreased profit also due to increased working costs.

The valuation of gold has been taken at £5 2s. 6d. less realisation charges of 7s. 6d. per fine oz. The net result is 3s. 9d. per fine oz. less than March, which has affected the profit results of all the companies.

Albu Group.

The following information is supplied regarding the April operations of the producing mines of the General Mining group:—

Company	Tons Crushed.	Cost.	Cost per Ton.	Total Revenue.	Profit.
Aurora West ...	12,800	£17,307	27·04	£14,888	*£2,419
Meyer & Charl.	13,000	17,554	27·01	40,888	23,334
New Goch	18,800	20,917	22·25	17,011	*3,906
Roodepoort Un.	20,800	28,171	27·09	21,668	*6,503
Van Ryn Est...	38,000	36,799	19·37	43,776	6,977
West Rand Cn.	33,300	43,307	26·01	43,801	494
	136,700	£164,055	24·00	£182,032	£30,805
				Less losses	12,828
					£17,977

* Loss.

In calculating the revenue, gold has been taken at a value of 102s. 6d. per fine oz., less estimated realisation charges.

The curtailment of operations in the case of the Aurora West and New Goch Companies came into effect towards the end of April.

Roodepoort United.—The increased loss as compared with March is due to the lower value at which gold has been taken. Operations during the last three months have resulted in heavy losses, and, with the greatly increased cost of stores and labour now prevailing, it appears impossible to continue work except at the expense of further substantial loss. Under these circumstances, and in view of the financial position of the company, the board is seriously considering the advisability of closing down the mine.

New Goch.—The working expenditure includes an amount of £2,625 expended on shaft sinking and development in the claims leased from the City Deep, Ltd.

Union Corporation.

Results of operations on the producing mines of this group for the month of April:

Company	Stamps.	Tons Crushed.	Fine Ozs.	Total Revenue.	Revenue per ton.
Geduld Proprietary .	100	42,000	11,909	£72,028	34/ 4
Modder Deep Levels	70	41,100	21,758	103,769	50/ 6
Princess Estate ...	60	19,200	4,909	23,595	24/ 7
Totals	230	102,300	41,576	£199,392	—

Company.	Costs.		Profit.	
	Total.	Per Ton.	Total.	Per Ton
Geduld Proprietary ...	£51,036	24/ 4	£20,992	10/ 0
Modder Deep Levels ...	46,635	22/ 8	57,134	27/10
			£78,126	
Princess Estate	30,589	31/10	*6,994	7/ 3
Totals	£128,260	—	£71,132	—

* Loss.

The revenue is based on a value per fine oz. of £5 2s. 6d. Realisation charges in excess of normal are debited direct to revenue account.

'Phone 4673. Box 3162.

OSBORN'S

DRILL STEEL (solid and hollow).
TOOL „
ALLOY „
SPRING „
SHAFTING „
PLATE „

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
"DALY" TAPPETS.
TRUCK WHEELS & AXLES.

"TITAN" MANGANESE STEEL.
CRUSHER SPARES & MORTAR BOX LINERS.

MUSHET HIGH SPEED STEEL.

Files, Shovels, Saws, etc.

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

Barnato Group.

The results of operations of the Barnato group for April are as follow:

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	43,700	£66,649
Government Areas	200	125,000	251,468
Langlaagte Estate	200	39,000	60,142
New Primrose	110	19,100	20,200
New Unified	60	10,600	14,828
Randfontein Central	600	130,000	163,475
Van Ryn Deep	90	46,100	127,183
Witwatersrand	215	37,250	51,168
Totals and averages ...	1,575	450,750	£755,113
March totals	1,565	490,500	£846,267

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings.	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ...	£57,662	26·390	£9,179
Government Areas	143,147	22·904	108,924
Langlaagte Estate	54,772	28·088	5,499
New Primrose	19,755	20·686	524
New Unified	12,265	23·142	2,595
Randfontein Central	201,012	30·925	*36,637
Van Ryn Deep	64,779	28·104	63,146
Witwatersrand	46,607	25·024	6,122
Totals and averages ...	£599,999	26·622	£159,352
March totals	£609,570	24·855	£241,002

* Loss.

Monthly Gross Profit.—January, £290,567; February, £174,380; March, £241,002; April, £159,352.

Note.—The above results are arrived at by calculating the gold produced at £5 2s. 6d. per fine oz.

Randfontein Central.—Poor results are due to accident in Block "A" shaft, from which no rock was hoisted.

Consolidated Mines Selection Group.

The following are the results of operations for the month of April:

	Stamps Working.	Tons Milled.	Working Costs per Ton Milled
Brakpan Mines	110	38,500	34/ 6·576
Springs Mines	80	39,600	29/ 7·927
Totals and averages ...	190	78,100	32/ 0·839

	Value of Gold declared.	Yield per Ton.	Working Profit based on standard value of Gold.	Working Profit per Ton.
Brakpan Mines ...	£74,146	38/ 6·211	£7,641	3/11·635
Springs Mines ...	76,916	38/10·157	18,188	9/ 2·230
Totals & averages	£151,062	38/ 8·211	£25,829	6/ 7·372

	Estimated Premium on output taking Gold at £5 2s. 6d. per fine oz. after allowing for exchange on value of Output.	Total Estimated Profit.
Brakpan Mines	£8,732	£16,373
Springs Mines	8,832	27,020
Totals and averages	£17,564	£43,393

Brakpan Mines.—Gold reserve unchanged, 3,724 fine ozs. The profit for the month was adversely affected by a sectional strike on the mine, which commenced on the 6th April, and resulted in the loss of practically five days' work. The strike arose through the dismissal of an employee, and, on the matter being subsequently referred to a Board of Reference, the action of the company was upheld.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits or losses for the month of April of the undermentioned companies of the Consolidated Gold Fields group:

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs	Profit
Simmer and Jack ...	320	7	55,500	12,359	*£544
Robinson Deep	150	8	51,200	18,180	15,004
Knights Deep	400	11	85,900	16,526	990
Simmer Deep	220	10	47,400	10,392	*6,983
Jupiter	80	5	23,000	5,705	*3,249
Sub Nigel	30	2	10,100	6,084	10,592
Totals	1,200	43	273,100	69,246	£15,810

* Loss.

Gold in Reserve.—Robinson Deep, 605 ozs.; Sub Nigel, 2,500 ozs.; total, 3,105 ozs.

Revenue derived from gold for the month of April is calculated at the rate of £5 2s. 6d. per fine oz. The above profits and losses do not include gold realisation and exchange charges, which are estimated at: Simmer and Jack, £4,743; Robinson Deep, £6,575; Knights Deep, £6,342; Simmer Deep, £4,170; Jupiter, £2,259; Sub Nigel, £2,335. Boards of directors of Simmer Deep and Jupiter have decided to close down. Statement has already been published detailing the reasons for this decision.

Transvaal G.M. Estates.

The following are the particulars of the output of the Transvaal G.M. Estates for the month of April, 1920: Central Mines: Tons crushed, 13,500, yielding 3,916 fine ozs. Elandsdrift Mine: Tons crushed, 1,500, yielding 1,197 fine ozs. Vaalhoek Mine: Tons crushed, 1,760, yielding 593 fine ozs. Estimated value of month's output, £27,399; estimated profit for the month, £896. The output for the month is valued at £5 2s. 6d. per fine oz., less realisation charges. The reduced profit is mainly due to the lower yield at Central Mines.

Witwatersrand Deep.

The estimate of the results for the month of April, 1920, is as under: Tons milled, 34,200; gold recovered, 8,926·075 fine ozs.; average number of stamps running, 200; mill running time, 23·421 days; tube mills, 5; development footage, 467. The working expenditure, including head office charges for the month, is £43,265, or 25s. 4d. per ton. The estimated working revenue based on an estimate of £5 2s. 6d. per fine oz. is £45,539, or 26s. 8d. per ton. The estimated working profit is £2,274, or 1s. 4d. per ton. The estimate of £5 2s. 6d. per oz. is based on the estimate of the Transvaal Chamber of Mines; from time to time as account sales are received the further premium obtained from the sale of gold will be published for the information of shareholders. Gold realisation charges, being exchange on advances at 7 per cent. charged by the Bank amounting to over £2,000 per month are not included in the above estimate of results.

Glynn's Lydenburg.

The following are the particulars of the output of the Glynn's Lydenburg for the month of April: Tons crushed, 3,555, yielding 1,447 fine ozs.; estimated value of month's output, £6,937; estimated profit for the month, £1,798. The output for the month is valued at £5 2s. 6d. per fine oz., less realisation charges.

THE APRIL OUTPUT IN DETAIL.

Decreased Return for Shorter Month—Native Labour Supply Just Maintained—Big Decline in Profits.

The Transvaal gold output for April month was declared by the Chamber of Mines at 686,979 ozs., as against 707,036 ozs. for the longer month of March, a decrease of 20,057 ozs. The totals for the past two months are as follow:

WITWATERSRAND

	Ozs.
March	689,645
April	667,926
Decrease	21,719

OUTSIDE DISTRICTS.

April	19,053
March	17,391
Increase	1,662

GRAND TOTAL.

March	707,036
April	686,979
Decrease	20,057

The value of the Transvaal gold output for April, calculated on the basis of £5 2s. 6d. per fine oz. (less realisation charges), is £3,520,767. The value of the March output, calculated on the basis of £5 5s. per fine oz., was £3,711,939.

NATIVE LABOUR.

The native labour figures for the past three months are as follow:—

	February.	March.	April.
On gold mines	185,185	189,561	189,446
On coal mines	12,708	12,788	12,951
On diamond mines ...	5,217	5,232	5,057
	203,110	207,584	207,454

COMPANY RETURNS.

WITWATERSRAND.

	Ozs.	Increase.	Decrease.
Aurora West	3,136	—	28
Brakpan Mines	17,460	—	3,633
City and Suburban	6,225	3,081	—
City Deep	25,012	—	305
Con. Langlaagte	13,005	676	—
Con. Main Reef	16,870	—	163
Crown Mines	54,976	—	1,426
Durban Deep	6,362	—	1,417
East Rand Proprietary ...	34,196	807	—
Ferreira Deep	11,286	—	408
Geduld Proprietary	14,909	—	1,081
Geldenhuis Deep	12,856	—	204
Government Areas	49,067	—	2,454
Jupiter	5,705	—	206
Knight Central	7,623	—	196
Knights Deep	16,526	332	—
Langlaagte Estate	11,735	151	—
Luipaardsvlei	5,064	437	—
Meyer and Charlton	8,349	200	—
Modder B.	23,393	—	3
Modder Deep	21,758	—	1,754
New Goch	3,349	—	52
New Heriot	2,838	—	327
New Kleinfontein	14,297	197	—
New Modder	44,562	—	1,644
New Primrose	3,941	244	—
New Unified	2,893	—	3
Nourse Mines	13,534	—	1,572
Princess Estate	4,909	—	509
Randfontein Central	31,898	—	8,814
Robinson	9,520	329	—
Robinson Deep	18,180	973	—
Roodepoort United	1,519	—	438
Rose Deep	14,981	301	—
Simmer and Jack	12,359	1,418	—
Simmer Deep	10,392	976	
Springs Mines	18,085	561	—
Van Ryn Estate	9,104	593	—
Van Ryn Deep	21,846	—	3,569
Village Deep	14,393	570	—
Village Main Reef	4,833	–	273
West Rand Consolidated...	9,182	115	—
Witwatersrand	9,984	—	387
Wit. Deep	8,926	372	—
Wolhuter	8,743	—	231
Miscellaneous	2,175	—	255

OUTSIDE DISTRICTS.

	Ozs.	Increase.	Decrease.
Sub Nigel	6,084	26	—
Barrett	116	—	85
Glynn's Lydenburg	1,447	250	—
Transvaal G.M. Estates ...	5,705	—	253
Consort	501	9	—
Miscellaneous	5,200	1,715	—

GROUP PROFITS.

	February.	March.	April.
Central Mining	£265,731	£341,691	£248,245
Barnato	174,380	241,002	159,352
Gold Fields	55,458	12,505	15,810
General Mining	23,628	19,158	17,977
Mines Selection	53,866	53,336	43,393
Union Corporation	101,429	91,972	71,132
	£674,492	£759,664	£555,909

CLYNE'S STEAM TRAPS

DIRECT ACTING. FREE FALL.

ADVANTAGES:

1. For all purposes, except exhaust steam.
2. Large capacity, big valve port.
3. Sure action, no lever or hinges, no friction or jamming.
4. Works against pressure.
5. Effects lift of condensed water.
6. Valves accessible and easily cleaned, as on top and safe from sediment.
7. Valve always under water, preventing loss of steam.

SOLE SOUTH AFRICAN AGENTS:

NATIONAL TRADING CO.,

54/58, CULLINAN BLDGS.,
MAIN ST., JOHANNESBURG.
Phones: 1205 & 1250. P.O. Box 2762.
Telegrams: "Gloria."

—ALSO—

"Sirius" Oxy-Acetylene Plants, "Daniel's PPP" Packing "Fox" and other Shovels, "Rainbow" Sheetings, Cotton and Woollen Wastes, Picks and Handles, Drill-Steel, etc.

PROGRESS AT THE MODDER WEST.

Result of Development Work—Mill Recovery in April 4·7 Dwts.—A Highly Interesting Venture.

A FEW weeks ago we published some particulars regarding the Modder West mine which is exploiting an occurrence of conglomerate immediately to the north of the property of the Van Ryn Estate. We then stated that the banket beds exposed there were a good deal of a geological puzzle, and although a very considerable amount of work has been achieved since our last visit to this interesting " lone hand " venture and although the reef peculiarities are better understood to-day than they were a few weeks ago, we are not at present disposed to attempt any very definite pronouncement as to the exact horizon of the auriferous pebble beds on the Modder West in the sequence of Witwatersrand stratigraphy. We are, however, inclined to the view that the reef exposures on the Modder West call for a fresh survey and reading of the geology of this particular section of the Witwatersrand. So much for the academic aspect of the property. As we have often stated, the gold content of any particular reef series is of more vital interest than its correlative value, and when it comes to a consideration of this particular aspect of the Modder West we feel that we are on much safer ground. The facts that up to date over 3,500 feet of development have proved the existence of a series of bankets carrying payable values over a very considerable width and that the preliminary crushing results have established the ability of the management to work the property at a profit cannot be denied and the progress of further work will be watched with very great interest. The operations at the mine during April are summarised in a report by Mr. H. Rose-Martin, general manager of the company, as under:

Mill (10 stamps) ran 12.385 days of 24 hours (part of the time only five stamps were dropped on account of boiler trouble). Tons crushed, 217.8; tons crushed in March, 147.8; recovery, 85.5 oz. fine gold. Value £438 3s.; value per ton, 24s. The foregoing values are arrived at by taking the value of fine gold at £5 2s. 6d. per oz. The rock crushed was taken from 14 different sections of the mine, as follows :—

	Tons.
From development at 100 ft.	144.9
From development at surface (several faces)	36.0
From stopes above 100 ft. level	132·6
From surface dump (several faces)	79.1
Total	392.6
Less waste	27.0
Tons milled	365.6

The gold recovered gives a plate recovery value of 4.7 dwts. per ton, and a considerable quantity of gold has been absorbed by the plates which have not set yet. The sands and slimes are being accumulated for future treatment. The foregoing mill results represent a mill sampling of the mine, as the ore milled was not picked, and represents a fair average of development to date. Only 132.6 tons have been taken from the 200,000 tons ore reserve. Another 15 feet of winze sinking on the east side will give a further 10,000 tons of reserve ore. The second hand steam plant is constantly causing trouble, but the second boiler will be ready for use early this month, when it is hoped that the plant will be run full time. During the month 49 feet were driven at the 100 feet level. The values and width are consistently good, giving 8 dwts. over widths varying from 60 to 120 inches. Prospecting has been pushed ahead, and during the month the sub-outcrop has been traced a further 200 feet, making a total strike disclosed to date of 3,500 feet of outcrop. Pannings throughout the strike indicate a remarkable uniformity of value. The work of following the sub-outcrop is being continued, and it is anticipated that a further large addition will be opened during May.

We publish herewith some interesting photographs taken by a representative of this journal, who visited the property at the end of last week.

Globe and Phoenix: Development Disappointing.

The Globe and Phoenix Gold Mining Company states that the following cable has been received from Mr. D. P. McDonald :—

" Development at Depth—North shoot 3a winze below 22nd level reef is not payable. Last portion 21st level drive reef is not payable. West portion winze below 20th level reef is not payable; too narrow; promising better and work is being continued. Sixteenth level south drive east portion small payable (shoot ?) opened out but extension very doubtful. Main reef extension of south drive on No. 4 level and 6th level narrow shoot 50 or 60 feet is indicated by development in course of completion.

" Prospecting—Reef exposed at surface but pinched and lost its value a few feet below outcrop. Borehole started on November block. Underground No. 4 level west main reef sheared zone in schist carries in several places very fair gold values; cannot estimate importance of discoveries without considerable work and in progress now. No. 10 level hanging wall leader not payable; block being subdivided by raise; promised values obtained but subsequently reef pinched out and faulted; prospecting continues hopeful. Since arrival reef cut at new point on No. 14 level, No. 15 level and No. 18 level; testing work will be hastened as soon as men available.

" Conclusions—Ordinary development disappointing; limit known ore shoot practically defined. Prospecting work more hopeful and consider it well worth continuing. Attempt to find new ore shoot necessarily slow. Time is required to prove whether appreciable quantity of ore can be found in above area."

In accordance with the provisions of sub-section (3) of section thirty-one of the Precious and Base Metals Act, 1908, of the Transvaal, it is notified that it is the intention of His Excellency the Governor-General to deproclaim as a public digging the Government farm Tygerkloof No. 103, District Carolina, Mining District of Barberton.

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent

TRIXIE LIMITED

(Registered in Southern Rhodesia, and under Section 198 of Companies Act 1909 of Transvaal Province.)

All Shareholders in the above Company should have their shares registered. The Company's books will be open until 31st May, 1920.

RAYMOND F. BURNIE, Secretary,
Box 5260. B7, Consolidated Bldgs.,
Johannesburg.

OPTION ON

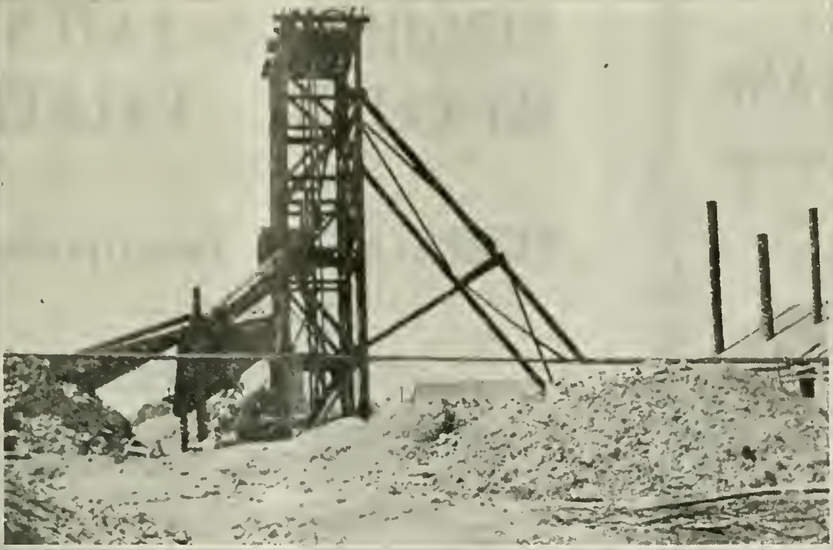
Grand Transvaal Coal Proposition

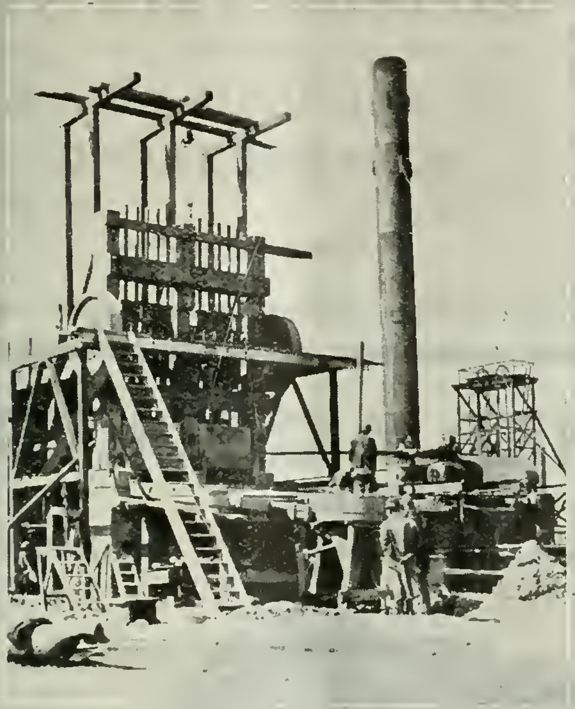
On the Railway Line, near Carolina.

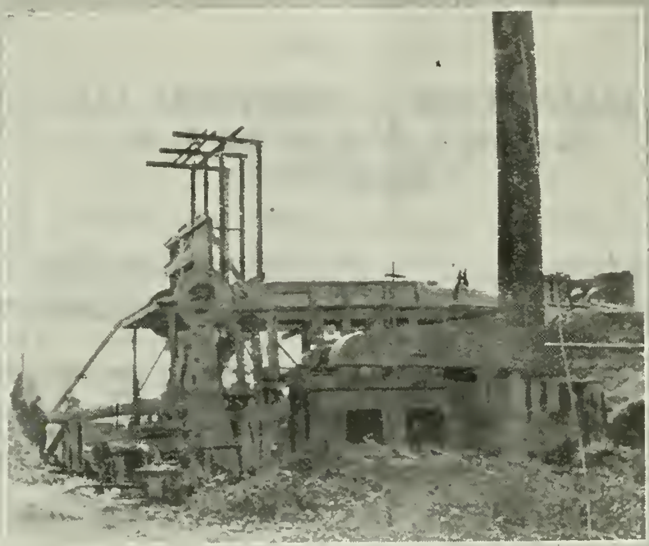
This Property is an adit proposition and could be worked at a minimum cost. Adjoins a Coal Property and lies above the present railway line.

Easy terms to be arranged. Shares in existing Company, or Company to be formed preferred.

Apply to Box 145, Harrismith.







(1) Modder West: The Main Shaft.

(2) Prospecting on the Modder West.

(3) The Battery.

(4) Another View of the Mill.

(5) Line of Workings on the Modder West. Van Ryn Estate in the Background.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

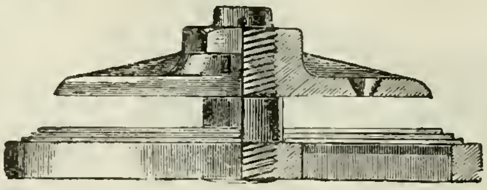
ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P. O. Box 4047. Telegrams: "THAINE."

KINGHORN'S PATENT
METALLIC VALVES
FOR
PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.

SOLE SOUTH AFRICAN AGENTS:

GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.

Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."

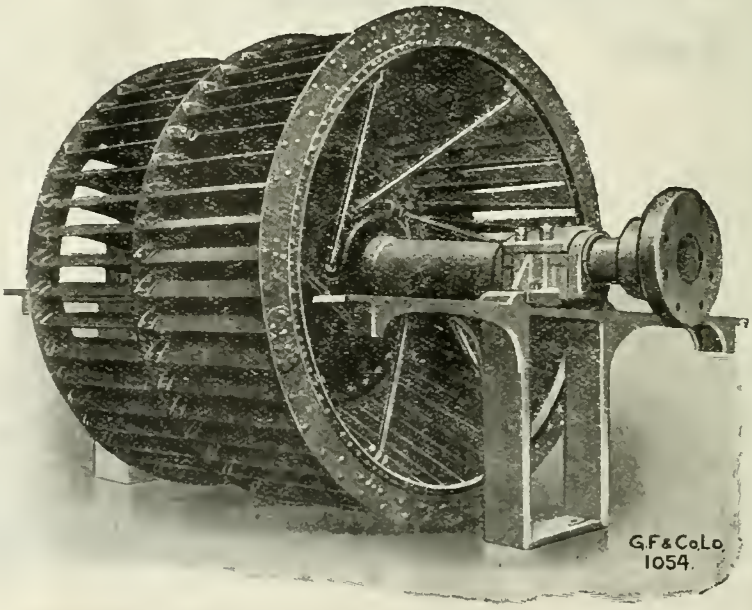
GEORGE FLETCHER & CO., LTD.
Masson & Atlas Works, DERBY, England.
SPECIALISTS IN MINE, COLLIERY AND CEMENT WORKS EQUIPMENT.

Sole Agents for South Africa:—

ASSOCIATED ENGINEERS
Co., Ltd.,
DURBAN.

Tel. Add.: "SPRINKLER."
P.O. Box 478. 'Phone 450.

Resident Engineer: T. McNICOL.



"AMARILLA" MINE FAN.

THE WEEK IN THE SHAREMARKET.

Further Heavy Liquidation—Developing Mine Shares Lower—Diamond Shares Weak.

The local market has witnessed further heavy liquidation during the past week. The best-class stocks, like Modders, have been sold down to even lower levels than prevailed three weeks ago, despite the fact that the dividend season is approaching. Developing stocks, like West Springs and Daggafonteins, have gone even weaker and are standing at almost panic prices. Modder Easts have been fairly steady. Transvaal Silvers have declined in sympathy with the general depression to a little over £2 and the options are correspondingly lower. Diamond shares have also been weak but Consolidated Diamonds went considerably stronger last week-end.

	Fri., 7th.	Sat., 8th.	Mon., 10th.	Tues., 11th.	Wed., 12th.
Anglo.-Amer. Corp.	33 9	35 6*	36 0	35 0	35 0
Apex Mines	—	—	7 0*	7 0	7 0*
Aurora Wests	4 6†	—	4 6†	—	—
Bantjes Cnsolidated	2 10*	3 0	2 9*	2 9*	2 9*
Blaauwbosch Diamond	—	—	—	80 0†	—
Brakpan Mines	53 0*	51 0*	50 0*	50 6*	50 0*
Breyten Collieries	8 0*	8 0*	8 0*	8 0*	8 0*
Brick and Potteries	—	5 0*	5 0*	4 6*	—
Bushveld Tins	1 3*	1 3*	1 3*	1 4	1 3*
Cassel Coals	—	30 0	—	—	—
Cinderella Cons.	6 0†	—	6 0†	—	6 0†
City and Suburbans	6 3	5 6*	5 6*	6 0*	6 0*
City Deeps	48 6*	48 0*	50 0†	47 6*	50 0†
Clydesdale Collieries	23 0*	22 6*	22 6*	22 6*	22 6*
Con. Diamonds	—	40 0	41 3	39 0*	40 0
Con. Investments	25 6*	—	22 6*	—	—
Con. Langlaagtes	—	17 6*	17 0*	—	17 0*
Con. Main Reefs	11 3*	11 3*	11 0	11 0*	11 0*
Con. Mines Selections	27 6*	—	27 6*	27 6	27 0*
Coronation Freeholds	1 5	—	1 9†	—	—
Coronation Syndicates	14 0†	14 0†	14 0†	—	14 0†
Crown Diamonds	11 6	10 6*	11 0*	9 3	10 3
Crown Mines	52 6	51 0*	51 3*	50 0†	49 0*
Daggafontein Mines	11 0	14 6	14 0	13 0*	14 0†
Do. Options. 4yrs.	—	—	0 3*	—	—
East Rand Coals	2 4*	2 5	2 4*	2 4*	2 3*
East Rand Deeps	1 0†	1 0†	—	1 0†	—
E.R. Minings	22 6†	17 6†	17 6†	17 6†	—
East Rand Props.	7 0	6 9	6 4*	6 3*	6 4*
East Rand Debentures	—	—	—	£75†	—
Eastern Golds	1 0*	1 0*	1 0*	1 0*	1 0*
Frank Smith Diamonds	13 3	13 9	13 3b	12 9	13 6a
Geduld Props.	43 0	42 0	42 9*	40 6	42 0
Glencairns	1 3*	1 3*	1 3*	—	1 3*
Glencoe Collieries	6 9	—	—	6 0*	5 6*
General Mining	8 0†	—	—	8 0†	—
Glynn's Lydenburgs	16 0†		—		16 0†
Government Areas	83 0	82 6*	81 3*	81 6*	81 0*
Hume Pipes	25 0†	25 0†	25 0†	23 0*	22 6*
Jhb. Bd. of Executors	37 6*	37 6*	37 6*	37 6*	37 6*
Jupiters	—	4 0†	3 9†	2 6†	2 0*
Kaalfonteins	0 6*	-	0 6	0 6	—
Klerksdorp Props.	2 3*	2 3*	2 3*	2 3	2 3*
Knight Centrals	4 0	4 0	4 3†	3 6*	3 3*
Lace Props.	9 9	9 0†	—	8 6*	—
Leeuwpoort Tins	21 0	21 0	21 0	21 9	24 0*
Lydenburg Farms	8 9	8 9	9 0	8 0*	8 0*
Meyer and Charltons	96 0†	95 0†	95 0†	95 0†	95 0†
Middelvlei Est.	1 1*	1 6*	—	1 6*	1 6*
Modder B's	127 6*	129 0*	130 0b	126 0*	129 0
Modder Deep	46 3*	46 6	46 3	45 6	46 0
Modder Easts	23 9*	23 6	23 9	23 1½	23 3
Do. Options, 3 yrs.	2 8	2 6	2 3*	1 11	2 0*
Do. Options, 4 yrs.	7 4	7 3	6 9*	6 0	6 9
Modder West	18 3†	18 6†	18 6†	18 3†	18 3†
Natal Navigation Col.	—	—	—	21 0†	21 0*
National Banks	—	-	—	265 0a	—
New Boksburgs	1 3*	—	—	—	—
New Eland Diamonds	62 6*	62 9*	61 6*	—	—
New Era Cons.	9 0*	9 0*	9 0a	—	9 0†
New Geduld Deeps	—	1 10*	1 10*	1 10*	1 10*
New Heriots	—	9 0†	9 0†	—	8 6†
New Kleinfonteins	8 6	8 3	8 0*	7 6	7 9
New Modderfontein	65 3	65 3	65 0	63 0*	64 3*
New Primrose	—	4 6†	—	—	—
New States	25 3*	25 0*	25 0*	25 6*	25 0*
New Unifieds	5 9†	—	—	3 0†	—
Nigels	10 0†	10 0†	10 0†	7 0*	7 6*
Nourse Mines	10 0	10 0†	10 0†	10 0†	10 0†
Pretoria Cements	90 6	91 0a	91 6	91 0	91 0
Princess Estates	0 9	1 0†	1 0†	1 0†	0 9†
Rand Nucleus	1 1*	1 4*	1 3*	—	1 3*
Rand Select. Corp.	75 0†	72 6*	75 0	—	75 0†
Randfontein Deeps	6 0	6 3*	6 6*	—	6 6
Randfontein Est.	17 6*	18 0	17 6*	16 9*	17 3*
Roberts Victors	12 6*	12 6*	12 6*	—	12 6*
Rooibergs	9 3*	9 0*	9 6	9 0	9 0*
Roodepoort Uniteds	4 0†	3 6†	3 6†	—	2 6†
Rouxvilles	17 6*	19 0	20 3*	21 0	21 6
Ryan Nigels	3 3*	3 3*	3 3*	3 3*	3 3*
Shebas	2 6†	2 3*	2 9†	2 0*	2 6†
Simmer Deeps	2 6†	2 6†	—	2 0†	2 0†
S.A. Alkali	17 6*	18 0*	19 0	21 0	19 6*
S.A. Lands	4 9*	4 9*	4 9*	4 9*	—
S.A. Townships	10 6	—	11 0*	10 3*	11 3
S. Van Ryn	8 0	—	7 6*	7 9*	7 6*
Springs Mines	44 6	43 6*	43 6*	42 6	42 6*
Sub Nigels	15 3†	14 9	14 9*	14 0	14 9*
Trans. Silver	50 0†	47 6*	47 0	40 0*	43 6
Trans. Options	27 6*	28 9†	25 6	22 0*	24 0
Transvaal Lands	20 0*	—	—	—	—
Transvaal G.M. Est.	—	—	9 0*	—	10 6†
Union 5 per cent.	£98*	£98½†	£98*	£98	£99†
Van Dyks	3 0†	—	—	—	—
Van Ryn Deeps	82 6*	82 6*	83 0	80 0*	82 0*
Victory Monarch	—	—	60 0†	60 0†	—
Village Deeps	10 0	—	10 0*	—	10 0
Western Rand Est.	5 3†	5 3†	5 0	5 0†	5 0†
West Springs	17 0	16 9	16 0	15 3*	16 0†
West Options	3 0	3 3	3 0	2 6	3 .0†
Witwatersrand Deeps	8 0*	8 3*	8 0*	9 0*	8 6*
Wolhuters	3 6*	4 3†	3 6*	3 6*	3 6*
Zaaiplaats Tins	8 4*	8 3	7 9	6 11	8 3†

*Buyers. †Sellers. aOdd lots. bEx London.

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

ENGINEERING SECTION.

USE OF ELECTRICITY IN DEVELOPMENT OF THE RESOURCES OF THE UNION.

[By Professor Buchanan.]*

It is more than four years since this Institute published the Report of the Development of Resources Committee, inviting attention to certain industries requiring a considerable amount of electrical energy, and for which a plentiful supply of suitable raw materials exists locally. There can be no doubt that this publication achieved some success, but neither can it be denied that many of us are disappointed with the relatively slow progress of this country in the commercial utilisation of electricity. There are indications, however, that the near future will witness an enormous expansion in the applications of electricity to metallurgical industries and to agriculture. It will be recollected that the Report called attention to the great importance of cheap fertilisers, and particularly referred to cyanamide, which can be produced economically wherever cheap electricity, coal and lime are available. The Nitrogen Products Committee appointed by the British Government has just reported recommending the manufacture of cyanamide to the extent of 60,000 tons a year. The plant is estimated at pre-war prices, plus 50 per cent., to cost £1,680,000 for water power, or if the factory is erected near one of the projected large steam power stations £800,000, including part cost of the power station. The chemical portion on the same basis costs £45,000.

The cost of electricity is given as £4 per k.w. year with water, or £5.6 with steam power, coal being 16s. 3d. per ton—this gives 10.17d. per unit with 0.9d. load factor. The factory cost of cyanamide is £6.4 and £7.0 respectively per ton containing 19.5 per cent. nitrogen. These costs omit interest on the price of the chemical section.

The last paragraph in our Institute pamphlet states :—"Iron and steel manufacture by means of the electric furnace offers a wide field for the economical working-up of the large amount of scrap in the country and the production of pig iron from the extensive ore deposits of the Murchison Range would become practicable in the event of cheap electricity becoming available."

The first-mentioned industry, the electrical manufacture of steel from scrap, is now in successful operation both at the Robinson Works and at Vereeniging, but the other referred to, namely, the production of pig iron by means of the electric furnace, has not yet been tried in this country. It is proposed, therefore, in this contribution briefly to call attention to some of the advantages likely to accrue from the use of electricity in the process of reducing ore to pig iron.

The operation of the ordinary blast furnace for the production of pig iron is well known, but it may be pointed out that the air blast is simply the ancient and somewhat crude method employed to produce a sufficiently high temperature to enable the carbon of the coke to combine with the oxygen of the ore, and thus liberate the metallic iron.

Since it is the oxygen only of the air which produces combustion, and air contains some four-fifths of inert nitrogen, obviously the thermal efficiency cannot be very high. The earliest step taken to improve the heat efficiency was by pre-heating the air, passing it through large brick stoves previously made red-hot by means of the waste furnace gas. A more recent attempt with the same object is by freezing the moisture out of the air before it is passed through the heating stoves, thus avoiding the loss due to conversion into steam; further, since the amount of moisture in the atmosphere is continually changing, the furnace temperature fluctuates correspondingly, with a resulting variation in the grade and quality of iron produced.

The latest device—which, however, is only in the experimental stage at present—is to use pure dry oxygen instead of air, which should give a higher furnace temperature and correspondingly more rapid working. By utilising the waste gas from the furnace, properly cleaned and cooled, by means of gas engines and electric generators, enough power becomes available to drive the blowers for the blast, compressors for freezing, and even for the manufacture of oxygen, if such is desired.

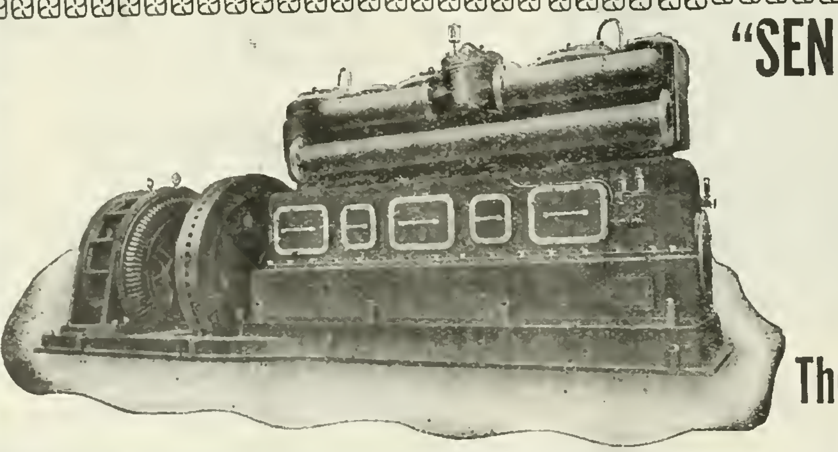
The furnace efficiency improves as the size is increased, owing to better pre-heating of the charge and reduced radiation, therefore one has to be careful to state the capacity of a furnace when quoting its thermal efficiency: while it may be possible to produce one ton of coke containing 3 per cent. of ash in a furnace producing 400 tons a day, nothing like the same result can be expected from, say, a 50-ton furnace using South African coke containing probably 15 per cent. of ash.

By using electricity as the source of heat, obviously no air-blast is required, and the quantity of coke needed is only that necessary for the production of the ore, from 500 to 700 lbs. per ton of pig depending on the completeness of combustion and the quality of coke. Since so little is required, and the electric furnace need not have a great height, it becomes feasible to use cheap coal instead of special dense coke needed for the blast furnace.

The great disadvantages inherent in South African coke are the high percentage of ash and the considerable amount of sulphur, both being specially objectionable for use in making pig iron—the former reducing the furnace temperature, thus demanding a proportionately greater quantity of fuel, besides increasing the amount of slag; while the sulphur either enters into the pig iron, considerably lowering its commercial value, or necessitates the use of an increased quantity of lime to remove a portion of it with the slag. No doubt the proper policy to adopt with South African coal for blast furnace use is to select a good coking quality, crush very fine, and by mechanical washing get rid of a big percentage of the ash and most of the pyrites which contain the sulphur: the extra cost of producing this washed cake has to be kept in view when comparing with the costs of an electric smelter. It will be obvious that since the electric furnace needs less than one-fourth of the quantity of carbonaceous fuel required by the blast furnace, any impurities introduced are reduced correspondingly. At the same time, in places where good hard coke can be obtained at a reasonable price free from sulphur and other impurities, the electric smelter does not appear to offer any advantages.

---

* Paper read before the S.A. Institute of Electrical Engineers.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessability, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Closing Down of Mines—Second-Hand Machinery Iron and Steel Enquiry for Wire Ropes—Timber and Mining Poles—Turpentine Acute Shortage—Electric Goods—Blue Hydraulic Lime—The Natives Future.

In consequence of the closing down of several mines, more particularly the Simmer Deep and Jupiter, a visit was made to Germiston, where several business men were interviewed. The general opinion was that something of the kind was expected, but when, it was difficult to anticipate. However, now a start had been made, the matter assumed serious proportions, as naturally business would be materially affected on the whole, but it was early days to say what the particular form would take. It was, however, ascertained that the delegates from the Underground Officials' Association would send a deputation to Capetown to interview the Government and members of Parliament on the subject. In Johannesburg a mining material broker said that the town was depressed owing to the probability of some half dozen mines closing down. In following up the question it was found, according to semi-official information, that the Simmer Deep had been in communication with the Government on the subject of closing down for several months, without any tangible result or encouragement from that quarter. In fact, it is said that the answer in reality was that if it costs twenty and sixpence to produce twenty shillings worth of gold there was no alternative but to close down. This view is pretty well borne out by the debate in Parliament being somewhat dull, and even tame for such an all-absorbing subject. The best point made in the debate as damaging against the Government was that since May, 1918, the Simmer Deep had paid an extra £9,500 in railway rates. And further, not a word was said in the Budget as to any relief in connection with the excessive taxation of the poorer grade mines, or to give them encouragement in some form or another. After all, no good purpose can be served in exaggerating the dire necessity of closing a few mines. What we have to do is to sympathetically assist those who lose their employment. In the first place, good experienced miners are wanted throughout South Africa, from the Natal-coalfields right up to the Belgian Congo. Then there will be vacancies in the mines to be worked on tribute, as well as for the ever-expanding Far Eastern Rand. The crisis has come, and must be faced with stout hearts and forbearance with all concerned.

SECOND HAND MACHINERY AND MATERIALS.

The second-hand machinery yards are very bare of any decent lines, therefore business on that account alone is on the poor side. Then comes the question of closing down some mines as to whether the groups will keep the machinery or dispose of it. If it is sold it is likely to flood the market, whereas if transferred to other mines business will be restricted in consequence. There is a great demand for rails at £22 10s. per ton for 12, 14, 16 and 21 feet. Poorer qualities are quoted at £18 and £19 per ton. Tram trucks: Ordinary tip, £15 to £17 each; saddle backs, 18in. gauge, £20 each; U-shaped end tip, £10; UV trucks, side tip, £21 10s. each: contractors' trucks, 21in. gauge, £20 each. Points and crossings, 60lbs. sets, £75 each; 12lbs. R.H., 15ft. 18in. gauge, £5 to £6 10s. each. Turntables, pivot bearing, £12 10s. each; and 12lb. do., £7 10s. Wheels and axles, £5 10s. the set. Fishplates, 1d. lb. Sleepers, clip bolt for 30in. gauge, 5s. each; Jim Crow for 60lb. rails, £12 10s. There is a good demand for second-hand boilers and engines for commercial factory purposes and agricultural stationery and irrigation works.

IRON AND STEEL.

A large shipment of brass, copper and naval bronze, as well as steel, has just come to hand into one of the Johannesburg yards, bought some little time ago from the British Minister of Munitions. It so happened that the six railway trollies arrived at the time of our visit. The whole consignment had a very solid look about it, and the importing merchant found himself fortunate in getting it through in such quick time, and in such good condition. Rand mild steel is dearer: ⅛in. 50s., and ½in. 10s. to 12s. 6d. Small steel rounds are very scarce, owing to the great demand for their use in reinforced concrete. Steel plates of 1-16in. thickness fetch 70s. to 80s. when obtainable, and 3-16 are nearly as bad at 55s. per 100lbs., and the prospect of replacement is remote. Hollow steel 1s., mild steel 7½d. lb., shafting 7d. to 8d. lb. Brass rods 2s. 3d., and brass tubing 3s. lb. Bolts and nuts, ⅜in., 1s. 6d. lb.; ½in., 85s.; ⅝in., 80s.; and ¾in., 70s. per 100lbs. These are likely to advance further. Ordinary shovels 65s., and the better kind 70s. per dozen. Wheelbarrows cannot be had in the ordinary course of trade, but when any can be picked up they realise anything up to 80s. each. Wire nails are 52s. 6d. to 65s. per 100lbs. The various merchants report that business is very quiet, with nothing of any outstanding importance. However, there is rather a big inquiry for wire ropes.

SALISBURY, RHODESIA.

WIGG & JENKINS,
MINING, LAND, AND COMMERCIAL AGENTS AND BROKERS.
Gold and Base Metal Properties
FOR SALE AND WANTED.

Correspondence invited
P.O. Box 118. Telegrams: "WIGG."

ALMOST
2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

TIMBER AND MINING POLES.

Timber, more particularly the 9 x 3 deals, is gradually getting scarcer, and no relief is expected for the Baltic article for another month The fully loaded sailing ship with Oregon timber is overdue at Durban, and when it arrives a little relief should be given throughout the timber trade. Deals are 2s. 1d. 2s. 3d.; floorings, 10¼d.—10¾d.; ceilings, 7¼d. to 7½d. Business is restriced, owing to the limited supplies of timber, doors, windows, casements, and household joinery. A large tender is out for a group's year's supply of mining poles, which will be eagerly competed for. In the ordinary way prices are inclined to be firmer, but the tender in question is expected to be filleld at about present values. In a conversation with an expert it was ascertained that the Natal wattle tree was at one time a by-product as compared with the wattle bark which has become such an important export trade. Therefore that was the direction in which the major portion of the supplies for mining poles was looked for subsequently. He further explained that the ordinary hardwood forests or tracts did not pay, excepting those very near the railway stations, and most of these had now been pretty well used up. Unfortunately a similar quantity of trees had not been planted to those cut; in fact, many owners sold the clumps of trees to speculators, and did not trouble about planting when those ripe for mining poles were cut. The forests at a distance from the railway may come in by and by, when the tracks are replaced by decent roads, made fit perhaps for motor transport. Another drawback is the difficulty of getting railway trucks, because it often happens that days are wasted in the waiting, therefore men and boys' time is practically lost, besides the irritation of the delays. The Government were doing something in the way of tree planting and encouraging others, but there is plenty to do in this direction, more especially as there is a ready made cash market for all kinds of timber, particularly mining poles and the white woods for making the ordinary 9 x 3 deals, etc.

OILS AND COLOURS.—TURPENTINE SHORTAGE

The acute scarcity of turpentine continues, as the wholesale houses are bare and the retailers only sell bottles. The nominal quotations are 195s. for 2—4's and 210s. for 10—1's. The position may be relieved in another four weeks, from America. In an oversea newspaper it was stated that Italy got some goods from Russia, and if that market was only opened for turpentine there would be a big drop immediately, and that source of supply is within the bounds of probability, now the price has risen to a pound a gallon. Linseed oil is 110s. for raw and 115s. boiled per case of 2—4's. White lead is 95s. per 100lbs., and 1s. 3d. retail. The best American salad oil has dropped 10s. per case, being 135s. for 2—4's; South African nut oil is 100s. per case. Petrol is 2s. lower, at 35s. 11d. wholesale and 39s. retail for 2—4's. Local grease £32 per tin, and imported £42. Business is quiet through the hubbub about closing down the mines, and various other disturbing elements. Plate glass is still unobtainable, as all the distributing firms have sold out. Sheet glass is still to be had, but replacement supplies are awaited with considerable anxiety. The Home and continental demands—being on the spot, as it were—pick up the stocks as they come from the furnace through the pertinacity of the travellers, who do not stand over much at the price for immediate delivery; at least that is what the private advices say.

ELECTRICAL GOODS AND PORCELAIN WARE.

After the rush there is a lull in business in the town, but the country orders continue excellent. Vereeniging is the latest comer into the market, as the wiring is getting on apace, and several Johannesburg men recently left to wire the church there, as well as a number of shops. The price of lamps and wire is advancing. There is a scarcity of porcelain baths, and all kinds of sanitary enamelware, which have advanced another 65 per cent. on standard list prices, making in all 190 per cent since pre-war days. There is also a shortage of cooking stoves, and these have advanced in price some 15 per cent.

BLUE HYDRAULIC BUILDING AND PLASTER LIME.

The demand has been fairly well maintained, although the tendency in Johannesburg has been to fall off a little. The price for blue building lime is ts. 9d. per bag, and 5s. 9d. for plaster lime.

There is an ever increasing demand for the Transvaal blue hydraulic lime, up to the P.W.D. standard, from the Cape and Natal, despite the increased railway rates. This lime is said to be far superior as compared with the Coast shell lime. The large works outside Krugersdorp commenced burning, but the kiln is not quite right, and another flue will have to be made to create a greater draught on the one side. This should be completed towards the end of the month, when the owners expect a larger output to assist in the supply of this special kind of lime.

IRON AND STEEL AND HARDWARE.

Latest advices from England are as follows:

The month of January witnessed no material change in the general state of the iron and steel industry. Manufacturers are well supplied with orders and buyers continue to experience great difficulty in placing new business. The recent resumption of work by the moulders, after a strike which lasted seventeen weeks, has resulted in an increased demand for material upon the home market, and there has consequently been a reduction in the volume of export trade done since the strike was settled. The congestion on the railways is still responsible for considerable delay in the delivery to works of fuel and raw material, and until there is an improvement in this direction it is doubtful if any substantial increase in production can be made. The National Federation of Iron and Steel Manufacturers reports that the output of pig-iron in the United Kingdom in January, 1920, was 665,000 tons, and of steel ingots and castings 754,000 tons. It is interesting to note that the production both of pig-iron and steel was higher in January, 1920, than in any month since May last, although in the case of pig-iron the January figure is considerably below the pre-war level. As regards steel, the January output represents an advance of about 18 per cent. on the monthly average for 1913, the increase being due to the additional manufacturing plant installed during the war.

Pig-Iron.—There is an active demand for export account, but supplies are short, and until the home situation becomes clearer, makers are disinclined to commit themselves too far ahead. Nominal quotations remain as last quoted.

Tinplates.—Inquiries are still plentiful, and makers appear confident that the market will remain strong throughout the whole of the year.

Galvanised Sheets.—The demand is considerable, but production is on a low scale, and makers are hindered in their operations by the difficulty in obtaining fuel, etc. Prices are very firm and it is not easy to place orders below £50 per ton for 24 gauge corrugated in bundles.

African Oil Corporation.

The following circular has been addressed to shareholders of the African Oil Corporation, Ltd.:

In sending the enclosed notice with regard to a Special General Meeting of the Company to be held on the 14th May, 1920, it is deemed advisable to explain to the Shareholders the policy of the Company and plans of the Board which make the passing of the Resolution set forth in the accompanying notice both desirable and advisable. The Shareholders have been informed that arrangements have been made with Mr. H. J. Ibbotson to carry out a bulk test of shale from the Company's properties with a view of determining the plant required for the treatment of shale and designing the plant. Mr. Ibbotson is not prepared at this stage to commit himself to any figure that it will be necessary to expend in order to erect a plant capable of treating 300 tons of shale per day, the lowest unit aimed at. Under the Articles of Association as at present registered, the Board has power to increase the Capital up to £300,000. The registered Capital is at present £125,000 of which £105,000 has been issued and is fully paid up. With the powers the Board already have to increase the Capital coupled with the powers which are now sought by virtue of the Resolution to be submitted to the Meeting on the 14th instant, it is hoped that sufficient Capital will be obtained to erect two units each capable of treating 300 tons of shale per day. The Board desire to be in a position to take prompt advantage of negotiations which they have in view for putting the Company's finances on a basis capable of bringing the venture to a producing stage on a large scale.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] MAY 22, 1920. [No. 1495.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: "**MINING JOURNAL.**"

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 271
Topics of the Week:
The Gold Premium 273
Our Increasing Coal Trade 275
Developments in the Postmasburg District 277
New Shaft at the Modder B. 279
Parliament and the Mining Crisis 280
Empire's Minerals: The Need of Increasing Production 281
The Komati Goldfields: A Retrospect 283
The Human Element in Mine Operation 284
The Week in the Sharemarket 285
Rhodesian Section:
Goldfields of the Belgian Congo 287
Trade and Industries Section:
The Week in the Mining Material and Engineering Trades 289
Engineering Section:
Electricity and Industrial Development 291
The Pretoria Portland Cement Industry 292
Company Meetings: Modder Deep; Geduld; Victory Diamonds 293

Notes and News

Union Corporation Subsidiaries.

Reports of the annual meetings of the Union Corporation subsidiaries, the Modder Deep, Geduld, and Princess Estate will be found in this issue. Mr. H. Newhouse—who, by the way, will not be vacating his present position till March of next year—presided at the three meetings, and dealt with their affairs in his customary able and concise manner. Beyond a plea for economy at the Geduld meeting, and a strong protest against going on with the Vaal River scheme of the Rand Water Board, the Princess speech was the only one in which the general position of the industry was touched upon. The closely reasoned statement explaining why the closing down of that mine was necessary throws an informative light on the position of all the low-grade mines. The facts and figures collected and admirably explained by Mr. Newhouse merit more extended treatment in a future issue.

* * * *

"The Colour Bar."

Thanks to Mr. Merriman's bold and eloquent introduction, the Colour Bar enjoyed a field day in the Assembly this week. Mr. Merriman seems from the telegraphed reports to have stated the case with all his old clarity, force and skill, and we can imagine the effect his deadly and precise statement of the facts must have had upon all but his most prejudiced antagonists. Of course, Mr. Creswell opposed, and Mr. Feetham, who brings a more open mind and broader vision to the consideration of the problem, had the last word, and that in favour of Mr. Merriman. The Government has set apart June 3 for the continuation of the debate, when the final report of the Low Grade Mines Commission will be available. Meanwhile we may congratulate Mr. E. J. Way on the fact that the mention of his name should have caused one of those little historical incidents in the House, Mr. Merriman, it appears, withering with his sarcasm a Labour interrupter who had dared to impugn the authority of our Chauncey Depew among consulting engineers!

* * * *

"The Seven Seas."

We welcome the first two numbers of a sturdy little contemporary, *The Seven Seas*, a non-party journal devoted to the interests of the Navy League in South Africa. The second number particularly contains several interesting articles, and some illustrations of outstanding merit. A wonderful double page plate showing a battleship firing a broadside of ten 12-inch guns suggests in unique fashion the tremendous vibration that results, and gives pictorial proof of the power of the Navy. The whole issue is plainly the result of much thoughtful care from those whose hearts are in their work; and reflects the utmost credit on the Federal President of the Navy League in South Africa, Mr. E. G. Izod, and on the Federal Secretary, Mr. L. W. Dallamore. The journal is generously, and rightly, supported by the leading Rand firms, and is excellently produced by the Argus Co.

* * * *

The Crown Diamonds Meeting.

At a meeting of the Crown Diamonds, Ltd., held the other day the directors came in for a good deal of hostile criticism. The chairman stated that the profit earned in respect of last year's operations was over £7,000. The consulting engineer explained that a large amount of "stripping" would have to be done at the property. A shareholder complained that despite the good reports which had been circulated in regard to this venture large blocks of shares had been thrown on the market and the public had been involved in heavy losses. It was also represented that the meeting had not been sufficiently advertised. So far as this journal can ascertain, the outlook at the property is decidedly promising.

Big Power Plant for Pretoria Municipality.

We understand that Pretoria Municipality have decided to order a large new power plant. Mr. T. Woolley Dod, the Town Engineer, has enlisted the advice of Mr. G. M. Clark, of Johannesburg, as Consulting Engineer.

* * * *

Modder East.

The milling of ore at the Apex mill from the Modder East mine is proceeding satisfactorily, and now that the long underground connection between Nos. 1 and 2 shafts has been completed and stoping is commencing, an increasing amount of ore from stope faces is becoming available. The ore is sorted both at the mine and at the Apex plant, and it is anticipated that the output in the near future will be more substantial than has generally been expected.

* * * *

Crown Diamonds.

The secretaries write: "We beg to advise that the results of washing operations for the past month are as follows: 11,749 loads washed, yielding 1,169¼ carats, which are valued at 69s. 8½d. per carat. Good progress has been made during the month in the work of stripping reef and installing additional haulage gears. Native labour conditions, however, are difficult. It is hoped that this feature will improve against the time when preparations for working double shift have been completed."

* * * *

The "Times" and State Subsidies.

The *Times*, commenting on the closing down of low-grade mines on the Rand, opposes the policy of a State subsidy for such mines, which it declares should not be hampered by artificial restrictions nor granted fictitious prosperity at the expense of the taxpayer. The *Times* says the gold mines were justified in claiming the advantage yielded by the market price of gold, and, conversely, were not entitled to assistance if the market price did not permit of their being worked at a profit. The real solution, says the *Times*, is the reduction of working costs. The belief is widely held that the prices of mining supplies will fall.

* * * *

New Indian Gold Selling.

During the greater part of the past year the various gold mining companies operating on the Kolar field have disposed of their produce—one-half to the Bank of England, delivered to the Bombay Mint at pre-War prices, the remaining half being sold to the Government of India at a considerably improved level. This arrangement being due to expire on the 14th May, negotiations have been in progress with reference to the future, and their outcome has naturally been awaited with much interest. At a recent meeting of the Ooregum Company Mr. Edgar Taylor was able to state that a conclusion had been reached and to give the particulars of the new contract with the group. As from the 15th May the Government of India has the option to purchase the whole or a portion of the output at the London market price, calculated at the current rate of exchange, the gold being delivered as heretofore at the Bombay Mint. A condition is that in the event of the Government not requiring the whole of the output the companies shall be free to dispose of the balance in other markets. At the outset, and until further notice, the Indian Government will take 75 per cent. of the metal from the mines, and so arrangements will be made to dispose of the remainder elsewhere. Payment for the gold taken by the Government will be made as to two-thirds in India at the ruling rate of exchange and one-third sterling in London. The contract is for one year, and is thereafter terminable by one month's notice on either side. While this new scheme will doubtless fall short of the expectations entertained by some people, it is—as Mr. Taylor pointed out—so far satisfactory that the companies secure at least the London market ruling price for gold. Working in a country where the rate of exchange is considerably against them, the companies cannot, of course, derive the same benefit from the appreciation in the value of gold as undertakings so situated that the question of exchange does not arise to the same extent.

Pretoria Cement.

We understand that additional plant has just recently come into operation at the Pretoria Cement Company's works at Slurry, near Mafeking. The demand for the company's product continues to be greatly in excess of the supply, and it is noticeable that the shares of this company have been very firm during the prevailing slump.

* * * *

Majunga Oilfields of Madagascar.

Martin's Oilfields of Madagascar (Parent) Co., Ltd., having acquired a block of 80,000 £1 shares of the Majunga Oilfields of Madagascar, Ltd., is offering them for sale at par in London. A letter from Majunga Oilfields states that immediately the company went to allotment the directors took steps to purchase the machinery and plant. The mining engineer and a director proceeded to Madagascar to receive the machinery and plant; another director proceeded to the United States to supervise its despatch, and has reported that this will be done by the 15th inst. The promoters have such confidence in the future of the company that they have taken up a number of shares (apart from their other holdings) equal to twice the sum due to them on account of promotion expenses. Mr. John Meiklejohn, who was engaged on geological research in the Island of Madagascar for a considerable period, says in a report on the company's property: "A prominent feature of your property is the numerous oil seepages that are met with. The Sakalava Valley is proved an oilfield by various bores that were started before the War. In several cases a high-grade light oil was struck, varying in depths from 300 ft. downward, in one instance the oil overflowing the top of the borehole. Your property is directly in the Sakalava Valley, and has a much larger show of oil than anywhere else there, and I have no hesitation in recommending you to push ahead with its development. A thoroughly detailed geological survey is necessary with the view of determining the most favourable sites for drilling operations. At the same time it is highly advisable to investigate the value of the extensive deposit on the surface by putting down hand boreholes or else sinking small shafts. In my opinion the result will well warrant the outlay."

* * * *

Diamond Prices and the Exchange.

The following telegram has been sent to various members of the Assembly by a meeting of the Vaal River Diggers: "Monster meeting diggers at Winter Rush informed diamonds fallen forty to fifty per cent. Wages reduced. Several diggers stopped working. Banks won't advance money. Diamonds position serious. Ask for suspension export tax. Protest meetings held everywhere." The chairman of the meeting held at Winter's Rush on the river writes that it is difficult to account for the sudden and severe drop, which, in some cases, is almost 70 per cent. In view of this and other alarmist statements in the Press several leading authorities on finance and in the diamond market were interviewed. The consensus of opinion was to the effect that there is no cause for alarm. The bottom has not dropped out of the diamond market, nor is there going to be a repetition of the slump of 1907-8 which lasted a couple of years, followed by a slow recovery. One of the financial authorities of Johannesburg said: "The case for buyers at present is this: The banks won't give you money. You must pay 8½ per cent. in any case for whatever you do get, and that comes off the price of diamonds bought now. Diamonds, it must be remembered, are bought here for cash, which comes from Britain. They are sent overseas and sold. The money they fetch to be sent out here again must pay 8½ per cent. If on top of that the banks in this country are not in a position to cash drafts, where are the people to get the money to make further purchases? This is not a question of thousands, but of millions. The Vaal River sales amount to between two and a half and three millions a year. That is big business. However, I am perfectly confident that the matter will adjust itself very shortly. It is purely temporary." This was the view taken by a number of other prominent financial authorities and business men who have connections with the diamond trade. The idea of a slump was not in their minds.

TOPICS OF THE WEEK.

THE GOLD PREMIUM.

We are indebted to Mr. Samuel Evans for a most illuminating paper on that most burning topic of the moment—the gold premium. Nobody is better qualified than Mr. Evans to deal with this difficult subject which is of such vital interest to the Rand to-day, and we would like to print every word of his valuable paper. As it will appear in full, accompanied by elaborate tables, in the *Journal of the Chemical, Metallurgical and Mining Society*, and is obtainable by all who want to follow his detailed arguments, it must suffice here to give some of his main points covering "the why and wherefore" of the gold premium. Longer extracts from the paper will appear in our next issue. Everybody must agree with Mr. Evans in his preliminary remarks that "a profitable discussion of that premium is out of the question without some understanding of the fundamental principles involved," and that "in dealing with the present premium on gold the only way to avoid pitfalls is to keep the theory of money constantly in mind." In introducing his subject Mr. Evans also declares:

> "I have recently read a few of the numerous books and pamphlets on the currency question which appeared in England in the first half of last century, and in the United States from 1862 to the end of the century, and I have come to the conclusion that, as regards the problem of money at any rate, the Sage was right: 'There is no new thing under the sun.' As far as I can see, living authorities on money have nothing much to tell us which was not told to our forefathers by David Ricardo, and later by General Francis A. Walker: and the modern champions of inconvertible paper currency have no arguments which were not used by Vansittart and other opponents of the Bullion Committee in England, and by E. G. Spaulding and other adherents of the National Greenback Party in the United States."

From this it will be gleaned that Mr. Evans is an uncompromising opponent of an inconvertible paper currency, and, indeed, of every form of money inflation. And it must be admitted that he brings to the support of his view a wealth of authoritative opinion and historical facts. A notable and novel point brought out by Mr. Evans is thus expressed in his own words: "A detailed and searching enquiry would, I believe, lead to the conclusion that the inflation of the currency has been the primary cause not only of the great rise that has taken place in the general level of prices, but also of the more important of the differences in the last two years as compared with 1913 between the exchange value in commodities of various groups of products; and that in nearly all cases inadequate production has been an almost negligible factor." This statement is supported by a valuable table setting forth the exchange value of commodities in the United Kingdom in 1919 compared with 1913, and shows that the exchange value of commodities, were money eliminated, has altered very little. For us the main interest of the paper lies in the answers to the two questions which Mr. Evans propounds, viz.: (1) Why is there a premium on gold; and (2) How long will the premium last? The answer to (1) is simply that the currency in which the premium is paid is depreciated as compared with gold. To answer (2) is, Mr. Evans says, impossible with any degree of certainty. But he adds: "It is obvious that the premium on gold will last in some form or another so long as there is in England a redundance of paper money and an embargo on the export of gold. It is also obvious that England cannot revert to a free gold market in a short time." Following this reply to these questions, Mr. Evans deals very caustically with the policy of the banks in this country as it affects the mines; and his views may be seen in the following passages, which we hope that separation from their context does not misrepresent:

> "In South Africa there has been an undue, and in my opinion an unnecessary, expansion of paper money and deposit liabilities, which now renders it advisable to avoid a sudden removal of the embargo on the export of gold. Unfortunately, the policy pursued by the banks in South Africa, particularly since the embargo was placed on the export of gold in August, 1917, has forced up the general level of prices in this country and substantially increased the working costs of the mines. The gold producers of the Transvaal and Rhodesia may lose the benefits obtainable from the premium on gold in one of two ways: (1) The value of British currency may be improved as compared with our currency and with gold; in other words, the general level of prices in England may fall; or, (2) The South African currency may be depreciated to the level of Bradburys. That is, the general level of prices in South Africa may be raised to that which prevails in England. The second course constitutes by far the gravest immediate danger as far as the gold mining industry is concerned. The inflation of the local currency which has been taking place at considerable speed in recent months is increasing prices rapidly and will, if not arrested in time, add to the working costs an amount greater than the total premium." And again: "The policy of monetary inflation pursued in South Africa since 1914 has been suicidal from every point of view. If the South African banks are allowed to continue this policy the time cannot be far distant when more than half the gold mines of the Rand will be compelled to suspend operations owing to increases in costs, and when the coal producers of South Africa will find it impossible to compete with American coal in the markets of the world."

As we have lately and only too plainly seen, there are bitter truths attached to these remarks, and no enquiry into our currency and exchange problem—such as is now in progress by the Government at Capetown—can afford to ignore them.

Big Pretoria Iron Company Registered.

There was registered at Pretoria this week, the South African Iron and Steel Corporation, Ltd., with a share capital of £1,500,000 to work the iron deposits at Pretoria. The directors are Mr. James R. Leisk, Sir Thomas Cullinan, Mr. E. C. Reynolds (managing director of the National Bank), Mr. C. F. Delfos, and Mr. A. C. Romyn. In the Supreme Court in Pretoria during the week application was made by the Union Steel Corporation of South Africa, Ltd., to restrain the Registrar of Companies from registering the name "The South African Iron and Steel Corporation, Ltd.," as it would lead to confusion and interference with the name of the applicant company. It was argued for the respondent that there was nothing distinctive about "steel" and "corporation," and that they are common to the trade, and, therefore, the applicant was not entitled to claim a monopoly of these words. The Court decided that the applicant corporation had not acquired this monopoly, and dismissed the application.

* * * *

Standard Bank of South Africa.

The report for 1919 states that, including £199,184 brought in, the balance of profits for the year, after payment of all expenses, making provision for all bad and doubtful debts, and rebating current bills, is £833,258. An interim dividend at the rate of 14 per cent. per annum for the June half-year was paid on October 24 last, amounting to £109,375; and there has been appropriated to write down investments, to cover depreciation in value at December 31, 1919, £75,000; to bank premises account, £50,000; to exchange reserve account as provision towards meeting the loss in shipping gold to South Africa, £200,000, leaving available £398,883. The directors allocate to officers' pension fund £40,000, and recommend a dividend of 7s. per share on 312,500 shares (being at the rate of 14 per cent. per annum), making 14 per cent. for the year, £109,375, and a bonus of 2s. 6d. per share, both less tax, £39,062; carried forward, £210,446.

* * * *

Better Financial Advertising.

The desirability of a more lucid presentation of facts in prospectus advertising is given further support in the columns of the *Financial News*. That paper, in making reference to the appointment as head of the Issuing Department of the Commercial Bank of London of Mr. Charles Duguid, late financial editor of the *Daily Mail*, remarks that his accession to the appointment "will not be without advantages to the bank's own shareholders. Its consummation, however, needs the hand of a man who has been accustomed for many years to 'sense' the sentiment of the investing public and to translate it into popular language. Such a skill will necessarily involve the capacity to display the prospectus features of a new enterprise in such a light as to attract the attention and support of the investing classes. It is this wide knowledge of the investor's temperament, combined with the possession of such a literary 'touch' as will enable the phrasing of a successful appeal, which the directors of the Commercial Bank of London have recruited in their new colleague."

SIEMENS BROTHERS
& CO., LIMITED

CABLES

AND

WIRES.

OVERHEAD LINE

MATERIAL

AND

EQUIPMENT.

TELEGRAPHS

AND

TELEPHONES.

MANUAL AND AUTOMATIC.

SIGNALLING

APPARATUS,

FOR

RAILWAYS, MINES, SHIPS AND

POWER STATIONS.

JOINT BOXES

TAPES, COMPOUNDS, CABLE

ACCESSORIES, TOOLS, Etc.

PRIMARY

BATTERIES

FLUID AND DRY.

Carbons for Battery Making.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

Established 1858.

OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines).

Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. Box 239, CAPE TOWN.

Telephone 1202.

Telegrams: "SIEMENS."

OUR INCREASING COAL TRADE.

Overseas Demands Increasing—Congestion at the Ports—Natal Earning Large Profits—Views of a Well-known Vryheid Colliery Owner.

THE recent very substantial advance in the Natal coal output which was dealt with at some length in our issue of a fortnight ago does not seem to have engaged much attention in Johannesburg, although this town is the chief mining centre of the Union and is largely interested in some of the Natal collieries as well as the other coal-bearing areas of the Union.

GOODS TRAFFIC SUSPENSION.

A significant note in connection with the Union's coal trade has been sounded by the Railways in a notice just issued which states that in view of the abnormal demand for bunker and export coal at all ports, including Delagoa Bay, it has been decided by the railway authorities to suspend acceptance of goods traffic—other than cement, lime, perishable and market traffic, private coal, livestock and consignments of an urgent nature, as follows: (a) Acceptance of traffic will be suspended from 6 p.m., 21st, up to and including 24th instant, and again from 6 p.m., 28th, up to and including the 31st instant. (b) Further, traffic will not be accepted which will land at destination on the evening of the 21st up to and including the 24th instant, and from the 28th up to and including the 31st instant. Despite the despondent tones recently sounded in regard to the coal outlook of the country and more particularly the export and bunkering trades, which were recently dealt with exhaustively in our special coal number, it is patent that the overseas market for the produce of our collieries is an expanding one and that given ability to transport more coal to the coast there would be an even greater increase in the sales of South African coal than has recently been observed. We understand that in so far as the Garden Colony is concerned the production and sales figures for April and May are substantially better than those of March, although the shortage of trucks and locomotives is still felt acutely. But there can be no doubt about it that Natal's coal trade is on the ascendant and it is significant that coal areas all over South Africa are in demand by highly influential firms.

NEW PIT OF THE DURBAN NAVIGATION COLLIERIES, DANNHAUSER.

MR. ROUILLARD'S VIEWS.

In so far as Natal is concerned we have had the pleasure during the past few days of interviewing Mr. R. A. Rouillard on the subject of the future of the Natal collieries. Mr. Rouillard is the South African head of an important Mauritian group of interests which has acquired extensive areas in the Vryheid district, prominent amongst which are the Enyati, Buffalo and Bernica mines. These companies have recently concluded large contracts for the delivery of their coal to the Paris-Lyons-Mediterranean Railways, and the recent increase in the export of Natal coal is in no small measure due to the sending of coal to the great French port of Marseilles. Mr. Rouillard stated that for years he had been an optimist in regard to the future of Natal coal. "Long before the War broke out," he remarked, "I held the view that the wages of European and American coal miners were bound to rise and stimulate trade between the older countries and the newer dominions where extensive and cheaply worked coal measures exist. Outside of Europe and America, South Africa is the only country possessing really extensive and cheaply worked coal fields, and it was abundantly clear to me long ago that South African coal would come into its own. The War has hastened the process. Moreover, it is patent that in these days of high freights it will only pay to export good coal, and that is why the best collieries are now inundated with orders. To-day we are sending large quantities of coal to France and to the Netherlands, and I am certainly of the opinion that our export and bunkering coal trade can be vastly increased.

"What we want in this country is a railway enterprise that will develop the country's resources, not impede them. Given more rolling stock and locomotives, we can enormously augment our overseas trade. The storage arrangements at Durban are being increased from fifty to one hundred thousand tons, and the prices being paid for good grade round Natal coal admit of very handsome profits being earned."

Mr. Rouillard showed us figures of two tests of coal from the Enyati Colliery recently carried out by the Railways. Notwithstanding the many difficulties in the way of stops and standing time, results were very good. The first test carried out on the 27th April gave the following figures: Evaporation, 8·35 lbs. of water; consumption, 13·65 lbs. of coal per 100 ton mile, which equals 71·728d. per short ton; total standing time, 125 minutes; number of stops, 9. The second test carried out on April 29th gave even better results as under: Evaporation, 8·63 lbs. of water; consumption, 12·80 lbs. of coal per 100 ton mile, which equals 74·509d. per short ton; total standing time, 118 minutes; number of stops, 10. The figures as to consumption in the second test are remarkably good and certainly bear out the view that first grade Natal coal is little behind Welsh in calorific value. The position of the South African coal industry at the present time is, so far as this journal can make out, remarkably sound despite sundry pessimistic utterances to the contrary, and if transport facilities to the ports can be improved we see no reason why there should not be a still further large advance in the overseas trade of our collieries.

A Train Load of Natal Coal at Newcastle.

Plant of the Natal Ammonium Company, Mount M'Gwibi, the Pioneer of South African Coal By-Product Enterprise.

The Lonely Mine.

The following are particulars of gold from the Lonely Mine for the month of April, 1920: Mill ran 700 hours; crushed 4,850 tons; fine gold recovered, 1,991·713 ozs.; value, £8,380 4s. 3d.; slimes tested, 4,850 tons; fine gold recovered, 3,430·379 ozs.; value, £14,437 16s. 4d.; total fine gold, 5,422·092 ozs.; total value, £22,818 0s. 7d.; profit, £10,194 10s. 6d.

Zaaiplaats Tin.

The Zaaiplaats results for the month of April, 1920, were as follow: Mill ran 7·7 days; concentrates won, 23 tons; estimated loss for the month, £152; capital expenditure, £71.

The directors report as follows for the quarter ended 30th April, 1920:—Reduction and smelting works: The mill ran 21·8 days during the quarter, crushing 3,154 short tons, the duty per stamp being 9·6 tons per 24 hours. The output for the quarter amounted to 65 long tons of concentrates, assaying 69·8 per cent. metallic tin. The results of working show an estimated profit for the quarter of £1,928 13s. 2d. before providing for directors' fees and Government taxes. 54·2 long tons of refined tin, assaying 99·5 per cent. metallic tin, were produced by the smelter. Capital expenditure: The expenditure on capital account amounted to £1,256 0s. 1d.; property, £971 5s. 7d.; machinery and plant, £284 14s. 6d. Mining and prospecting: Development in No. 13 during the quarter has not led to the discovery of high grade ore. Payable ore is being obtained from several faces, but the prospects, while not unfavourable, do not indicate an immediate improvement. The crosscut ore body gave disappointing results during the greater part of the quarter. Work is now being carried on in the face going back to the surface, and also in the lower extension. Both faces are large and strong with payable values on the footwall. The Government lease working improved in a marked manner and is an important producer of tin. This has now become a most promising section. During the quarter 3,551 tons of ore was mined and disposed of as follows: Waste sorted, 397 short tons; sent to mill, 3,154 short tons. Valley alluvium: The output for the quarter was 15 long tons of concentrates. Treatment of the alluvium is proceeding satisfactorily and a further increase in output may be expected as deposit is opened up. Stavoren Tin Mining Co., Ltd.: Work was restricted at Stavoren on account of labour shortage and malarial fever. Towards the end of the quarter the position improved somewhat, but no development worthy of special mention was accomplished. Milling was suspended on the drying up of the water supply. The native labour supply was plentiful at the end of the quarter. Rainfall: 9·95 inches of rain fell during the quarter.

DEVELOPMENTS IN THE POSTMASBURG DISTRICT.

Delivery of the West End Plant—Position at Postmas Prospect—The Emerald Diamonds Flotation.

Despite the temporary setback to the diamond industry occasioned by the exchange question, the new fields around Postmasburg in the Hay and Kurman districts of the Cape Province continue to be the scenes of great activity. Since the abatement of the recent exceptionally heavy rains the roads have improved materially and transport facilities are much better than they were a few weeks ago. Road parties have been at work at several points between Schmidt's Drift and Griquatown and also between Griquatown and Postmasburg. Motor cars and wagons are thus able to make the journey of 120 miles direct from Kimberley to Postmasburg or 140 miles through Griquatown with considerably greater ease than they could a month or so ago.

The West End Plant.

These improved transport conditions have resulted in the complete preliminary washing plant of the West End Diamond Company being delivered on the property, which is about two miles distant from Postmasburg. About twenty wagons of equipment and stores have just arrived on the West End mine and work in connection with the erection of the new machinery will be commenced forthwith. In the first instance the washing gear will consist of one twelve-foot pan. Two large 16 ft. pans have also arrived on the property, but it will be some time before these are at work, as the type of power plant to operate them has not yet been decided on. In the meantime "stripping" of the mine is proceeding and it is hoped to have the first and smaller test washing gear of 150 loads capacity at work at an early date. Later on the large plant of 1,000 loads per day capacity will be put into commission.

150 Claims.

The area of the West End mine recently proclaimed by the Government is in extent 147 claims, and it has been proved to the satisfaction of the Government that diamonds occur in this pipe in payable quantities. Washing operations, which will shortly commence on a considerably larger scale than has hitherto been attempted, will demonstrate the value of the property on a substantial basis of output.

Postmas Prospect.

At the Postmas Prospect properties adjoining West End exploratory work on the pipe occurrences discovered there is proceeding satisfactorily and everything points to the likelihood of the proposition becoming an important producer in the near future. We understand that Mr. James West, late manager of the Makganyene mine, has been appointed to the management of the Postmas Prospect in the place of Mr. Dilks, who has resigned.

The Emerald Diamonds Flotation.

As to other propositions in this area, Emerald Diamonds, Ltd., has just recently been registered with a capital of half a million sterling, and a policy of prospecting on a large scale of the forty odd farms acquired by this company is being carried out. Particular attention is being devoted to Kouwater, on which farm a pipe of large dimensions has been located.

South African Townships Corporation.

The twentieth annual meeting of the South African Townships, Mining and Finance Corporation, Ltd., will be held in the offices, Jeppe Arcade, Johannesburg, on June 24, at 10.30. Extraordinary general meetings will immediately follow to consider alterations in the company's articles.

Aerial Ropeways.

In the *Engineering and Mining Journal* for February 28, Douglas Lay writes on the design and arrangement of aerial ropeways, having regard particularly to various methods of prolonging the life of the ropes.

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January-April, 1920, we secured 14 out of 22 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P. O. Box 4047. Telegrams: "THAINE.

FOR
GREATER
ECONOMY, LONGER
SERVICE, AND MAXIMUM
DEPENDABILITY UNDER ANY
AND EVERY CONDITION

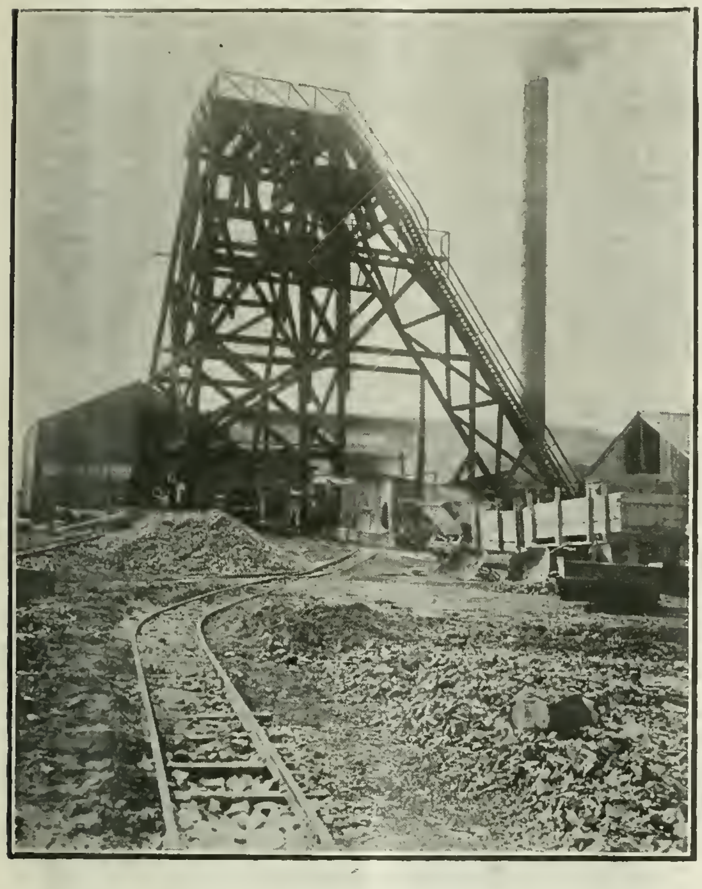
BARTLEITE
JOINTING
& STREBOR
PACKINGS

THEY MAY COST YOU A LITTLE MORE
THAN SOME OTHERS, BUT THEY
ARE WELL WORTH THE
DIFFERENCE.

NEW SHAFTS AT THE MODDER B.

Progress of Sinking.

The accompanying photograph illustrates the new south-eastern shaft of the Modderfontein B. Gold Mines. The main winding engine house is to be observed on the left-hand side of the photograph. The subsidiary headgear frame and engine room to the right have been installed for baling. The shaft had reached a depth of 1,100 feet at the end of April. Construction work was completed in August last. It is anticipated that the Reef will be intersected at a depth of between 1,700 and 1,800 feet. In view of the large tonnages that will have to be dealt with from the deeper western side of the mine, and of the great distance of this section, both from the old central and the new south-eastern shafts, it was some time ago decided to sink an additional south-west shaft. Its diameter is 18 feet, and its depth about 1,700 feet. This second shaft has now reached a depth of about 100 feet.



THE SOUTH-EASTERN SHAFT OF THE MODDERFONTEIN B. GOLD MINES.

The ore reserve of the Modder B. on remeasurement and revaluation at December 31st, 1919, totalled 3,215,100 tons of an average value of 9·0 dwts. over 63 inches. Compared with the preceding year, the reserve shows a decrease of 162,900 tons, the grade a decrease of ·2 dwt., and the stoping width an increase of one inch. The decrease in tonnage is not important, and the more favourable prospects in the south-east section of the mine, as manifested by the Geduld drive, altogether outweigh any adverse impression that this circumstance might create. The authorised amount of capital expenditure outstanding at the end of the year amounted to £201,093, which covers the balance necessary to complete the sinking of the south-east shaft and the temporary equipment thereof which will enable the development of that area to be carried out. This amount also includes the estimated cost of sinking and permanent equipment of the south-western shaft. The expenditure will be incurred over a period of approximately two years, and if nothing unforeseen occurs, the financial position of the company ensures its provision without interfering with the ordinary dividend distributions.

Drills for Oil-Wells.

In the *Engineering and Mining Journal* for February 7, A. G. Wolf describes rotary rock-bits used in drilling oil-wells.

The Apex Colliery.

In his annual report on the operations of the Apex coal mines during the period from 1st January to 31st December, 1919, the manager, Mr. J. R. Thom, writes: The machinery and plant has been maintained in good working order, and has run satisfactorily throughout the year. It is now eight years since this plant commenced working, consequently a large amount of repairs and renewals had to be done. The small locomotive had to be completely overhauled and a new boiler put in at a cost of £1,130. The mine development, in comparison with the output, has been satisfactory. Figures are attached showing the actual tonnage despatched during the year. The development amounts to 3,356 feet, representing an area of 22·96 acres available for mining purposes, which will yield 349,115 tons of marketable coal. The haulages have been extended throughout the year as occasion required, and tramming by manual labour has been reduced to a minimum. In view of the reduced working hours, and the long length of rope on No. 1 haulage, I am putting in another set of haulage gear; this will enable us to speed up and minimise stoppages. 55 new tubs were made and 35 tons of rails were bought during the year. Our cutters have run fairly well during the year, but as they have been in use for eight years, and new machines were unobtainable, the repairs over the year were very large. As the supply of water for our boilers which we were receiving was unreliable, we had to instal a pumping plant at the pan, which is working satisfactorily. The result of the year's work shows an increase in output of 11,801 tons, but, unfortunately, the profits do not show an increase, owing to the increased cost of production. The total output for 1919, as compared with the previous year, was as follows: 1918, 177,809·8 tons; 1919, 189,611 tons.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

Sole Agents: **KELLY & CO.,**

The "KELCO" People.

Box 5260. Phone 4333.

AGENCY—First-class Sheffield House are open to appoint firm or person with good connection amongst the Mines for the sale of Mining Steel.
Write in confidence, stating terms, turnover anticipated, and references to Box 844, T. B. Browne's Advertising Offices, 163, Queen Victoria Street, London, E.C.4, England.

PARLIAMENT AND THE MINING CRISIS.

Full List of Mines Closing Down—Another Six Struggling—The Princess Estate Chairman Gives Reasons—Official Statement by Minister of Mines.

In the Assembly this week, Mr. G. Brown asked the Minister of Mines and Industries: (1) How many mining companies had given three months' notice to the Government of their intention to close; (2) what were the names of these companies; (3) what had been the result in each case of any inquiry made by the Department of Mines and Industries: and (4) were these companies or any of them retrenching employees meantime, and if so would the Government take steps to prevent any further retrenchment pending a complete investigation. The Minister's reply was as follows: (1) and (2) The following are the mines of which the Department has received notice that they are likely to close: Princess Estate, Simmer Deep, Jupiter, New Kleinfontein (Apex section), City and Suburban (to be absorbed by City Deep), and New Heriot. In the case of the following mines the Department has received notice of the curtailment of operations, and their continuation is uncertain: Aurora West, Durban Roodepoort Deep, Luipaardsvlei, New Goch, and Village Main Reef. Another six or seven mines are in a struggling position, but may be able to keep going for some time, although retrenchment may have to take place in some directions, and much will depend upon the possibility of reducing costs of working. (3) The reports of the Committee of Inquiry which have been appointed will be printed and laid on the table of the House when received. (4) Yes, the interim report of the Low Grade Mines Commission and the recent conference between the Chamber of Mines and the workers have resulted in an arrangement by which companies are meeting their employees and discussing the situation of each mine frankly with the men with a view to arriving at the best method of meeting the emergency by retrenchment in certain cases and by reorganisation. The Government does not propose to interfere in the arrangements thus being made.

A TYPICAL CASE.

The causes of the decision to close down the Princess were given by Mr. H. Newhouse in the course of an interesting speech delivered before a meeting of shareholders in the board room, Consolidated Buildings, Johannesburg, this week.

The reasons for the decision, Mr. Newhouse said, were three—delays in development, decrease in yield, and increase in costs, and he went on to give details of the increase in costs.

In the course of his remarks he said: I do not believe that the decreased output per white man now being generally obtained on the Rand is to any appreciable extent due to a deliberate desire to work less during work time. On the contrary, I think the employes on the Rand, as a whole, work as hard as ever they did during the time they are at work. What then are the causes for the decrease in output per man at work measured in tons? I find five: (1) Shorter hours worked; (2) increased stringency of regulations; (3) employment of less experienced men; (4) increased mining difficulties; (5) redundancy in employment.

PROBLEM OF HOURS.

Far and away the most serious and most general in its effect is the first of these. The output per man employed, surface and underground, for the whole of the Rand decreased 10 per cent. as between 1917 and 1918. The figures show conclusively that the claim of the trade unions that the decrease in the time worked per day would be largely balanced by an increase in the output per hour has not been justified. The progress of work should not be hampered by unnecessary mining regulations such as stope inspections. I am advised that in this respect many improvements could be made without danger either to health or safety.

The employment of less experienced men, the speaker went on, needs little comment. Normally the older an industry becomes the more experience its members gather. It is not so here; but the great efforts which are being made, I believe successfully, to overcome phthisis, the institution of training schools and the improvement in conditions generally should tend to a better state of affairs and produce in greater number the all-round miner, of whom we formerly had so many and now have so few.

PRICE OF LOCAL PRODUCTS.

Proceeding, Mr. Newhouse read a table of figures which, he remarked, seemed to indicate that local products rose in price much more slowly than those which had to be imported or were made of imported materials. With the cause of the increases apart from decreased output he did not propose to deal. They were too well-known: but it was worth mentioning that the Government had not seen its way to desist from adding to the burdens of poor mines. On the other hand, to their great honour, the coal owners had differentiated between the poor mines and those better off, and they had not attempted to make the richer mines make up for the difference.

SHORTAGE OF NATIVE LABOUR.

Continuing, Mr. Newhouse remarked that during the greater part of the year the company had been seriously affected by shortage of native labour, and to this cause was attributed the reduction in the tonnage mined, percentage of waste sorted and tonnage crushed, with the consequent reduction in the gold output.

Disappointing though these results were, they were cheerful compared with those obtained for the first four months of the current year. Working costs, mainly as the result of the further concessions in pay and privileges made to European and native employes in common with the rest of the mining industry, increased to 31s. 8·8d. per ton, or 3s. 3½d. above the 1919 average. This being accompanied by a falling off in the yield of 3s. 5½d. per ton to 22s. 3·6d., the four months' operations resulted in a working loss of £35,132, based on the standard price of gold, in addition to which there was capital expenditure amounting to £2,238, bringing the total to £37,370. It had been estimated that the net premium to be received in respect of the sale of gold would amount to about £16,400, which would reduce the deficiency for the four months to approximately £20,000.

Clearly the continuance of operations could only have served to increase this loss, and, had it not been for the premium on gold the board must have decided to cease work long since.

DECISION FORCED.

The recession of the premium was rapidly bringing matters to a head when an accident occurred which forced a decision. On April 24th a serious fall of rock took place in the main shaft and stopped operations below the 11th level. Happily, no one was injured, but the result was in every other way most serious. An important source of ore, from the point of view of quantity and particularly of quality, was closed off for about a fortnight, and heavy clearance expenditure was necessitated. So the board, with all the facts before them, decided to cease mining, and no board could have decided otherwise. It did so with the greatest regret. On May 8th the South African Mine Workers' Union, through the Government, requested the company to agree to a committee of inquiry on which it should be represented to inquire into the position of the mine. Consent was given. The committee, consisting of Mr. Fergusson, Inspector of Mines, Krugersdorp, the manager of the mine and Mr. Sartorius, representing the Union, was duly appointed. It had not yet finished its work. He (the Chairman) failed to see how it could come to a conclusion other than that arrived at by the board. After all, the first crushing result was declared over 30 years ago—in February, 1890.

Turbine Pumps.

The *Engineer* for February 27 publishes a description of a multi-stage high-pressure turbine pump made by Mather & Platt. There are two pumps, mounted one on each side of the electro-motor: the low-pressure pump has six impellers and develops 1,486 ft. head, and the high-pressure pump has eight impellers and raises the head to 3,470 ft. It runs at 1,480 r.p.m., and is driven by a motor rated at 1,450 h.p.

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

TRADE MARK

HAS THE LOWEST CO-EFFICIENT OF FRICTION.

KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.

Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg
Bulawayo and Salisbury.

EMPIRE'S MINERALS: THE NEED OF INCREASING PRODUCTION

Plea for an Investigation and Conservation Commission.

In the course of his presidential address on the "Mineral Production of the Empire," before the Institution of Mining and Metallurgy, Mr. Frank Merricks, C.B.E., said :—

The mineral discoveries made during the past eighty years in various parts of the Empire have practically placed the United Kingdom in an independent position so far as mineral supplies for her domestic requirements are concerned, and she has now to rely on toreign countries for but few ores and metals. Moreover, almost every country in the world is at least to some extent dependent on the British Empire for certain minerals, the supply of which is under her control

Decline of Production.

The continued fall in the world's production of gold during the past four years, in spite of the increased demand for the metal, is a matter of serious importance. The value of the 1914 output amounted to slightly over £90,000,000. In 1915 it increased to £96,525,000. Since then, however, there has been a marked yearly falling off. In 1916 the output decreased to £93,841,000, and in 1917 to £86,980,000, while in 1918 it was only £78,221,700—that is to say, nearly 20 per cent. less than in 1915. The output for 1919 is expected to show a further decline. It is highly satisfactory to note that the gold production of the British Empire represents about 64 per cent. of the world's total. The production of Africa—mainly, of course, from the Transvaal—represents about 76 per cent., and that of Australasia about 14 per cent. of the Empire's production. The gold output of the United States is roughly 20 per cent. of the world's total.

It is not possible to give close figures relative to gold production in Russia, Mexico, and other countries during the War years, hut it has been more or less authoritatively estimated that 16 per cent. of the total output was derived from these various sources.

The combined output of South Africa, Rhodesia and British West Africa fell from £44,147,000 in 1915 to £39,754,490 in 1918, the Australasion output from £9,964,000 to £8,526,800, and that of the United States from £20,300,000 to £14,064,410.

The only country which appears to have increased its production of gold in quite recent years is Mexico.

With few exceptions the world's output of the more important minerals has been seriously declining during the past few years. This may very largely be attributed to the War and labour troubles. So the British Empire must bestir itself, its miners and metallurgists no whit less actively than its traders and shopkeepers.

Conservation of Mineral Resources.

The reasonable conservation of the mineral resources of the Empire calls for serious consideration by her various Governments. In this connection I am thinking more particularly of coal, iron ore, and ganganese ore. Apart from the production of food, the dominating factor in the commerce of the world will be the production of iron and steel, in the manufacture of which coal and manganese play such important parts. In recent years there has been keen competition for iron ore properties in all parts of the world.

Large and economically valuable deposits of iron ore occur in Newfoundland, India, Australia, South Africa, New Zealand, and possibly British Columbia, whiel manganese ore occurs abundantly in India and in important quantity on the Gold Coast. These mineral assets of the Empire are of such importance to her enduring progress that an Imperial Commission might well be appointed for their exhaustive investigation with a view to their exploitation by the least wasteful methods. Such a Commission might also investigate the economic conditions of the territories in which the deposits examined are situated, with a view to determining the desirability or otherwise of erecting iron and steel plants in their immediate locality. The conservation of coal, manganese ore, nickel, and cobalt ores and other minerals of special importance should also be considered.

The development of a nation's mineral wealth tends to establish other industries; and, as the application of these raw materials to manufactures is developed, a large participation in the world's market is secured.

The British, Dominion and Colonial Governments, taking advantage of experience gained during the War, should attach to the Government Department dealing with industry and commerce a committee of technical advisers, such as that already constituted in New Zealand, so that the brains and practical knowledge of the ablest men of affairs throughout the Empire may be always at her service.

So far as mining and metallurgy are concerned, I know that I am expressing the unanimous feeling of the members of this Institution when I say that they would most willingly and heartily cooperate in such a scheme for the industrial advancement of our Empire.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

SOUTH AMERICA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

Head Office:
Montreal, Canada

ARGENTINE
Buenos Aires.

BRAZIL
Rio de Janeiro, Santos, Sao Paulo.

URUGUAY
Montevideo.

VENEZUELA
Caracas, Ciudad Bolivar, Maracaibo, Puerto Cabello.

COLOMBIA
Barranquilla.

BR. GUIANA
Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON
Princes St., E.C.

PARIS
28, Rue du Quatre-Septembre.

NEW YORK
68, William St.

BARCELONA
Plaza de Cataluna 6.

THE ROYAL BANK
OF CANADA

Capital Paid Up & Reserves $35,000,000
Assets over - - - - $500,000,000

"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 90-lbs. It is Suitable for Stoping, Raising and Driving.
Low Air Consumption. It drills 30% faster than any other drilling machine.

No Mine Manager can afford to neglect the economic merits of the - - - - **'HYDROMAX'** **The Fastest Rock Drill in the World.**

We have exclusively manufactured drills for thirty-seven years and the "HYDROMAX" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
CARN BREA, CORNWALL (Wm. C. Stephens, Managing Director).

Agents— **WM. HOSKEN & CO.,**
Phones 4113/9. **Box 667, JOHANNESBURG.** **Telegrams: "HOSKEN."**

WM. HODGSON & SONS

(Weighing Machinists) LIMITED,

MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,
WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—

Geo. GRADOCK & Coy. (S.A.) Ltd.

Box 316. Tel Add. "Ropes" Tel. 539.

THE KOMATI GOLDFIELDS: A RETROSPECT.

[By James Cumming.

Answering the question once put to Selous, "Where can I go for a little sport not too far from home?" I could not suggest a more fitting area than the Valley of the Komati. In addition to potting either buck or partridge one can carry a hammer and do prospecting for gold at the same time. The venue is unlike the plateau that stretches from the Crocodile River to the Messina mine south of the Limpopo, where one has of necessity to carry a rifle in addition to a prospecting hammer. In the Komati district there is no such need, as wild game does not abound. I know of no other part of the Union where game can be so quickly and easily reached, and where a shooting party can go at a comparatively small cost. The old Komati gold fields are reached easily from Carolina in the Eastern Transvaal. A motor mail service leaves Carolina for Umbabane thrice weekly, on Tuesdays, Thursdays and Saturdays, returning every Monday, Wednesday and Friday. The stopping place is Oshoek, where there is a fairly good hotel, every attention being paid to travellers by the new management. The distance from Oshoek to the Komati River is about 14 miles. The road down the Berg is sadly in lack of repair and it is hard work to either man or beast to clamber down, but once on the flats, the joys of the trip commence and the bad roads left behind are soon forgotten. Here one will find buck in abundance. The place is wholly uninhabited and forms a safe breeding ground for all kinds of small game. The great point to remember, however, is to get there before the sheep farmers trek with their flocks. There are not many head of game left when the last farmer turns his back on the Komati in July or August. I give these hints on game *en passant*, as my mission was to have a look at the site of the erstwhile town of Steynsdorp, and locate some of the once well-known gold mines. The Rand is diminishing in its output of gold, and the new mines on the Far East coming into commission are not likely to prove equal to the task of keeping up the output of gold reached during recent years, or absorb the men thrown out of employment by the shutting down of those mines on the Central Rand. Three decades have passed since the Komati valley was teeming with life; that peaceful valley which once had the ideal of a great gold field and the glorious hopeful days of long ago. In September, 1886, when I paid my first visit to Barberton (I had been on the Rand in August of the same year) the Komati gold fields were being actively worked. The high hopes of those associated with their development were destined never to be realised because of the counter attraction which suddenly burst upon the sub-continent and the world like an abnormal tidal wave and literally swept people off their heads and their feet. The rise of the Rand was phenomenal. The story of the decay of the Komati gold fields and Steynsdorp is, as a consequence, a dramatic one. The lure of the Rand sent a thrill round the globe and recalls an almost forgotten story of the past generations when men began to rush to the new El Dorado from all parts of the world, some to win wealth beyond their fondest hopes, others to spend heart-breaking months, which lengthened into years, in pursuit of the elusive riches that always looked like unto perfect will-o'-the-wisps. The dreary stretch of water-shed hills and bare veld of these far away days might have remained for ever dreary, had it not been for Mr. Fred Struben.

"Old faces look upon me, old forms go trooping past." What joy is there in the contemplation of years that have fled! What memories are recalled as we lift the shroud that veils the past and bring into the bright sunlight of the present scenes and incidents that generations ago had been relegated to the oblivion of forgetfulness! What pleasures circumvent the halcyon days of youth and hope—those days that knew not care nor gave a thought for the responsibilities of the future. Life to us, the pioneers, had its joys notwithstanding the hardships that were inseparable from the seeking for the precious metal in a cold, bleak wilderness with starvation privations when compared with the ease, the elegance, and the luxury of the present. To few now living here was it given to know the Rand in the middle 'eighties. Those were the days of its birth—when the Main Reef with its attendant leader, and companion South Reef, were not thought of on the "dip," before even a gold commissioner had been appointed, and whose coming gave the name to that broad thoroughfare which runs majestically from Mayfair to the west of old Johannesburg, with its ornate business premises or modern banking establishments; and when myriads of sheep knew no sound except those of their own bleating or were disturbed only by the ping ping of a solitary Boer rifle.

The spirit that actuated the pioneer was not to be caged in a city. As with the Rand, so also with other gold centres in the Transvaal. Even before the Rand came into being the Komati gold fields were being actively prospected and worked. The towering hills adjacent to and in the neighbourhood of Pigg's Peak, Forbes, the Knuckles, the Heights, Moodies, were alive with busy prospectors. The conditions under which they prosecuted their work called for courage and perseverance of a high order. They had to battle against mountains and rivers fraught with diverse dangers compared with which the Rand in its early days was a picnic ground. Picture to yourself a tract of mountains and dales with a mighty river rushing wildly over huge boulders with its virgin sheen undimmed in deep pools by human artifice, only Basutos as inhabitants from the time when they were routed, who had to flee for safety after being hammered by the bloodthirsty Chaka, and you have a mental vision of the great gold field which had its rush of eager prospectors, with its periods of hopes and depressions alternately, and which finally had its extinction through its total eclipse by the greater Rand. Most of those who invaded the Komati gold fields were men capable of any kind of privation, and they held out hopes of fortune building, and but for the overshadowing influence of the Rand, the news of which broke upon them like a wave of doom, they would have developed the Komati to an appreciative productive stage. The magic lure which became attached to the name of the "banket" reef proved the undoing of the Komati fields and the town of Steynsdorp. A general stampede to the Rand took place soon after the first sensational news of its possibilities reached Steynsdorp, and, within a year or two, hundreds of men who had worked contentedly on quartz reefs and alluvium vanished. Now after waiting all those years the vanquisher is diminishing, and it looks as if that peaceful valley which once enjoyed the excitement of a prospective gold field may yet come into its own.

OXY-ACETYLENE
WELDING AND CUTTING PLANT MANUFACTURERS.
Complete Equipments.
McGOWAN, WILD & CO.,
"ECONOMIC" WELDING BLOWPIPE, the most Efficient and Economical on the market.
Suppliers to the Trade of all Accessories for Welding and Cutting.
OXYGEN-PRESSURE-REGULATORS, CAST-IRON WELDING STICKS, FLUXES for Cast-Iron, ALUMINIUM, BRASS, COPPER, PURIFYING MATERIAL, TUBING, Etc.
Stockists : JENKINS & CO., Greenmarket Square, CAPE TOWN.
Sole Representatives for South Africa :—
MACLACHLAN & CO.
ATHENIAN CHAMBERS, SHORTMARKET ST., CAPE TOWN.

THE HUMAN ELEMENT IN MINE OPERATION.

[By Edwin Higgins.

To operate at maximum efficiency a mine must have not only suitable equipment and proper methods: it must have labourers who return an honest day's work for the wages paid to them. Bearing in mind that in metal mining generally from 60 to 70 per cent. of the total cost of production is chargeable to labour, it may be seen readily how seriously labour performances may be reflected on the cost sheet.

The Humane Method.—" How can I get better co-operation from my men?" is a question often asked by mine officials. In the last two or three years, during which the efficiency of labour has decreased to such a great extent, this question has been frequently asked. The answer is to be found in the fact that the degree of layalty in a workman is a direct measure of his value to his employer. The higher the degree of loyalty, the more valuable is the man. Therefore, in order to secure the best results, it is necessary that workmen be accorded such treatment as will win and secure their loyalty. To accomplish this there is no better method known than the policy of the square deal and humane treatment. The truth of this statement has been demonstrated by thousands of employers. A striking example of employers of this class is James H. oster, of Cleveland, Ohio, a man who converted a small shop into a steel-fabricating plant with a yearly business of 25.000.000 dollars. The following paragraphs from an article recently written by Mr. Foster are of interest:—

" Men are square. I believe that to the very underpinning of my soul. I do not mean some men, or even the average man. I mean the overwhelming majority; all but the few scattering votes that do not affect the final returns. I suppose that the men out in my plants are no different from the men in Duluth or Birmingham. and that I have a right to judge by them. As I have worked with these men and played with them they have continually brought home to me the fact that the big thing a human being wants is a decent right to self-expression and self-respect. And he resents any attempt to deny him this right. The employer who takes men thoroughly into his confidence is making an investment with amazing possibilities. When we adopted the eight-hour day there was one department in which it seemed doubtful that we could get enough production to avoid a clear loss. I went over the situation thoroughly with the men in that department and explained the breakers we saw ahead. I have never seen a body of men take hold of a problem more intelligently and earnestly. Through their own efforts the production in that department became greater in the eight-hour day than it had been under the old ten-hour schedule."

The Role of the Chief.—It is true that many dividend-paying mines are in charge of men who have little or no regard for the human element. It is equally true that many such mines are not operating at maximum efficiency, although they appear to be, because they are paying dividends. Where the ore is of low grade and every device must be used in order to squeeze out a profit, the successful operator will be the man who is surrounded by a crew of loyal workers. To illustrate this point, two extremes may be cited:—

On the one hand, picture a manager who is a driver of men, getting results because his employees are afraid of him or afraid of losing their jobs. These employees have no kind thoughts for the boss; they refer to him in slighting terms and possibly make faces at him behind his back. On the other hand, let us consider a manager who, by humane treatment and the square deal, has won the respect and loyalty of his men. To sum up in a few words, his employees would 'go to Hades' for the 'old man.' It is unnecessary to ask which of the above two managers stands the better chance of successfully operating a mine. Labour may be divided into three classes: (1) The loyal worker; (2) the worker who lacks enthusiasm and is on the fence as regards responsibility to his employer; (3) the discontented worker, the trouble-maker. The problem before the employer is to bring as many of his men as possible into the first class. The application of the prinicple of the square deal and humane treatment must of necessity originate with the manager, superintendent, or man in charge, whatever his title may be. For brevity he will be referred to herein as the Chief. The development of loyalty and a spirit of co-operation within the organisation should be one of the most important concerns of the Chief. If he has a natural disposition to treat fairly and humanely with his employees his task is not a complicated one. Lacking a natural bent in this direction, it may not be a difficult matter to correct the fault. Engineers as a class are analytical, and because faults can be found in almost any operation, they are likely to be critical, even hypercritical. In searching for inefficiency or the cause of poor operating results, the Chief should first reverse the usual order of things and analyse himself. For instance he might ask himself, "How do I stand with the men? Are there any of them who would make a trip to Hades for me? How many of them would put a little extra effort in their work over and above what is called for by their day's pay?"

Relations of Officials and Bosses.—It is not only important that officers and bosses be fitted for the positions they hold; they should be men who can and do work together as a harmonious unit. The spirit of co-operation should be strong, with every man doing his share to get results. It is unnecessary to point out the disastrous results which inevitably come when one or more men in an organisation begin pulling in the wrong direction. Emphasis should be laid, however, on the necessity for securing co-operation. The exact method of bringing about harmony and co-operation depends largely on the personality of the Chief. He may find it necessary, in order to remedy troublesome conditions, to shift his men about. He may have in his organisation one or more men who are most efficient workers, but who are inclined to cause trouble. Ordinarily, it is worth considerable effort to change the viewpoint of such men, but if they cannot be converted, the organisation is better off without them. One of the commonest causes of discord and discontent is the disregard, on the part of the Chief, of that basic principle: responsibility and authority must lie together. No mistake can be made if this principle is followed throughout the organisation. On the other hand, trouble is inevitable when it is ignored. There is one simple remedy that may be regarded as almost a sure preventive, as well as a cure, for discord in the organisation. Reference is made to regular meetings of officials and bosses. At such meetings operating troubles may be discussed and suggestions for betterment made; an opportunity is presented for the men to get closer together and familiarise themselves with each others difficulties and viewpoints. These meetings tend to develop those who have a natural desire to remain in the background and keep their ideas to themselves; they induce a greater interest in the work, and take away the idea of some that they are only cogs in a wheel. No one man knows everything, and six or a dozen heads, even though some of them developed only in the stern school of experience, are better than one head, no matter how refined may be the brain matter contained within it. Meetings of this kind are being held by many mining and industrial companies throughout the country. Some of them are weekly, some semi-monthly, and some monthly. Many companies precede some or all of their meetings by dinners, followed by something to smoke, and now and then some kind of entertainment.

Treatment of the Working Crew.—The average man will without doubt respond to humane treatment and the square deal. In putting the policy into effect it is important that as little noise as possible be made about things done for the men. Some companies are to-day nullifying the results of their work by shouting from the housetops regarding their philanthropy towards the working man. Procedure of this kind breeds resentment and can result in no good. The aim of the management should be to remove reasonable cause for dissatisfaction, make such improvements as will tend to attract a high class of labour, and to so regulate relations with the men as to win their loyalty and respect. In working towards these ends it is essential that the Chief set the proper example by his attitude; and he must see to it that his officials and bosses reflect this attitude. In looking for causes of dissatisfaction, or opportunities for betterment, attention should be directed to the following: Relations with the men, housing, feeding, sanitation, recreation and amusements, education, safety, social and religious affairs. The relative importance of the above factors depends largely on the class of labour, size of the operation, and location of the camp (isolated or otherwise). At small mines or smelters it might be desirable and practicable to do only a part of the things indicated; at larger mines or smelters there may be many other things that should be given consideration. Efforts of this nature are generally referred to as welfare work. This term appears to be rather ill-chosen, for it is too suggestive of charity, a thing that working men do not want.—Abstract from *Mining and Scientific Press.*

Pulverized Fuel.

Mining and Metallurgy for February contains a paper by R. E. H. Pomeroy describing the coal-pulverizing plant at the Nevada Consolidated Copper reverberatory furnaces.

Municipal Notice—Bloemfontein.

TENDERS FOR TRUCKS AND RAILS.

Tenders are hereby invited, to be delivered to the undersigned not later than the 1st JUNE, 1920, for the supply of the following:—

30 pairs of 2in. gauge rails, with sleepers and fishplates.
2 Right-hand crossings.
2 Left-hand crossings.
6 Side-tipping trucks, about 15 cubic feet capacity.

Tenders to be marked on the outside of the envelope "Tender for Trucks and Rails"

The Council will not necessarily accept the lowest or any tender

By Order,
J. P. LOGAN,
Town Clerk and Treasurer.

Town Office, Bloemfontein,
17th May, 1920.

THE WEEK IN THE SHAREMARKET.

Exchange and Bank Rates Dominating Features—Firmness in Modder Easts—Diamonds Nervous—Tins Weak

Although the local market has been weak and depressed, the tendency in regard to best class stocks has been steadier. Last Saturday the whole market receded to almost panic prices, but on Monday a substantial improvement was observed, and although prices have not in many instances been maintained the general tone is firmer. Questions of exchange and bank rates continue to dominate prices. Fears of a further increase in the bank rate have tended to restrict dealings and to induce selling. The whole question of gold premium and exchanges is so involved and complex that most people have given up attempting any prophecies as to the course of the market in the near future. Apart from matters which are quite outside the province of the mining industry the position of the profit-earning gold mines should tend to improve. Cessation or curtailment of operations at several of the low-grade properties may lead to selective principles in regard to white employees and an improvement in efficiency. The dividend season, too, is approaching and this may have a steadying influence. Firmness in Modder Easts and an improvement in the options has been a feature of a particularly dull gold market. Diamond stocks are still nervous and Tins (notably Leeuwpoorts) inclined to weakness. Transvaal Silvers are somewhat better and African Oils have improved to 12s. 6d., whilst Geluks have been dealt in at 4s.

	Fri. 14th.	Sat. 15th.	Mon. 17th.	Tues. 18th.	Wed. 19th.	Thurs. 20th.
Anglo-Am. Corp. . .	34 9	34 9†	34 6*	34 3	33 6b	33 3
Apex Mines	7 0	6 9*	7 3†	—	—	—
Bantjes Cons.	2 9*	2 9*	2 9*	2 9*	2 10*	2 11*
Blauwbosch Dmds.	—	80 0†	—	—	—	—
Brakpan Mines . . .	50 0*	50 0*	50 0*	53 6	—	52 9*
Breyten Colls. . . .	8 0*	—	—	8 0*	—	8 0*
Brick and Potteries	4 6*	5 0*	4 6*	—	5 0*	—
Bushveld Tins . . .	1 3*	1 4	1 3*	1 3	1 3	1 3*
Cinderella Cons. . .	6 0†	5 6†	6 0†	—	6 0†	—
City and Subs. . . .	6 0*	6 0*	6 0*	6 0*	6 0	6 0*
City Deeps	46 3*	47 0*	47 6*	47 6	41 3*	42 0
Clydesdale Colls. . .	22 6*	22 0*	22 0*	22 0*	22 0*	—
Con. Investments. .	—	—	25 0	—	—	20 0*
Con. Langlaagtes . .	—	—	—	16 0*	15 0*	15 0*
Con Main Reefs . .	11 0	10 6*	10 3*	10 6*	11 0	10 9*
Con. Mines Selects. .	28 0†	—	25 0*	27 0*	27 0†	25 0*
Con. Diamonds. . .	39 0†	38 0	37 6*	38 0*	35 0*	37 0
Coronation Freeholds	—	1 1*	1 3*	1 5*	1 3*	1 4*
Crown Diamonds . .	—	7 9	9 0*	8 9	8 6*	8 6
Daggafontein Mines.	11 6	11 9	12 3*	12 6*	12 0	12 0*
Do. Opts. (4 yrs.)	—	—	—	—	—	0 1*
East Rand Coals. . .	2 4*	2 4	2 3*	2 4	2 3*	2 4
East Rand Deeps .	0 9*	1 0†	1 0†	1 0†	0 9	0 9*
East Rand Minings	17 6†	17 6†	17 6†	17 6†	17 6†	17 6†
East Rand Props. .	6 9	—	—	6 3*	6 9	6 7*
Eastern Golds . . .	1 0*	1 0	1 0*	1 0*	1 0*	1 0*
Frank Smith Dmds.	12 0	10 6	11 0	11 6	11 0	11 4½
Geduld Props. . . .	40 9	39 0*	39 0*	40 0	39 9	39 0*
Ginsbergs	1 0*	1 0*	—	—	—	1 0*
Glencairns	—	1 3*	1 3*	—	—	—
Glencoe Collieries . .	6 0	6 0*	6 0*	—	—	6 3*
Govt. Areas.	81 0	82 0	83 6	82 9	82 6	83 0
Jhb. Bd. of Ex. . .	37 6*	37 6*	37 6*	37 6*	37 6*	37 6*
Jupiters	—	2 6*	—	2 9	2 6*	2 9*
Klerksdorp Props. .	2 3*	2 3*	—	—	2 3*	2 3*
Knight Centrals . .	3 6	4 0†	3 7*	3 9	3 9	3 8*
Knights Deeps . . .	—	—	—	—	4 0*	4 3*
Lace Props.	7 0*	—	—	9 6	9 0*	9 0*
Leeuwpoort Tins . .	21 0	19 0	19 0*	19 3	18 0*	18 0*
Lydenburg Farms. .	8 0*	8 0*	8 0	8 3*	8 3*	8 0*
Meyer and Charltons	92 6†	92 6†	92 6†	—	—	92 6†
Middelvlei Est. . .	—	1 3*	1 6*	1 3*	1 3*	—
Modder B.'s	—	124 0*	126 0	127 0†	120 0*	123 0
Modder Deeps . . .	45 3	46 0	46 9	46 6	45 9*	46 6
Modder Easts . . .	22 6	21 6	22 0	22 9*	22 4½	22 1½
Do. Opts. (3 yrs.)	—	0 10	1 4	2 1	1 7	1 5*
Do. Opts. (4 yrs.)	—	4 9	5 0	6 9	6 6	6 3
National Banks. . .	—	280 0†	280 0†	—	280 0†	270 0a
New Boksburgs . .	—	—	1 0*	1 0*	1 0*	—
New Eland Dmds. .	—	62 6†	61 3*	—	—	50 0*
New Era Cons. . .	9 0	9 0*	—	9 0†	—	7 9*
New Geduld Deeps.	1 9*	1 7*	—	—	1 7*	1 7*
New Heriots	—	7 6†	—	9 0†	8 0†	8 0†
New Kleinfonteins .	7 9*	7 9*	7 0a	7 6b	7 3	7 0
New Modders . . .	63 9	63 6	65 0	65 9	64 3*	64 9
New Unified . .	3 0†	—	—	3 0†	2 0*	—
Nigels	—	—	—	7 0*	7 0*	7 0*
Nourse Mines	10 0†	10 0†	10 0†	10 0†	9 6b†	6 3a
Pretoria Cements .	91 0	91 6*	93 0a	93 0*	94 0	95 0*
Rand Nucleus . . .	1 3*	—	1 4*	1 4*	1 3*	1 3*
Rand Select. Corp. .	—	73 0†	72 6*	70 0*	70 0*	72 0
Randfontein Deeps.	—	5 6*	6 0*	6 6*	6 6†	6 6†
Randfontein Est. . .	16 6†	15 6*	16 3*	16 6	16 3*	16 3
Roberts Victors . .	—	—	11 0*	14 0†	13 0†	10 0*
Rooibergs	8 9*	8 3	8 9*	9 3*	9 9	9 6
Roodepoort Uniteds	1 0†	0 6*	—	—	—	1 3†
Ryan Nigels	3 5*	3 4*	—	3 3*	—	—
Shebas	2 0*	2 0*	2 0*	2 0*	2 6†	3 0†
S.A. Breweries .	36 0†	36 0†	36 0†	35 0†	35 0†	35 0†
S.A. Lands	4 3*	4 9*	4 9	4 6*	—	4 0*
Springs Mines . . .	41 6	42 6*	42 0	42 9	42 0*	43 0
Sub-Nigels	14 0	13 6*	15 3	15 3	15 0	15 0
Trans. G.M. Est. . .	11 6†	8 0*	9 0*	10 0*	10 3†	9 0*
Van Ryn Deeps . .	80 0	81 0	82 0*	82 3b	80 0*	80 0*
Village Deeps . . .	10 0†	10 0†	10 0†	10 0†	8 0*	—
Wolhuters	3 6*	3 6†	3 0*	3 1*	2 9*	2 9*
Western Rand Est .	3 3*	4 0†	5 0†	4 0*	2 9*	—
Witbank Collieries .	42 6*	42 6*	42 6*	—	45 0†	—
Wit. Deeps . . .	8 9*	8 6*	9 0*	9 0*	8 0*	8 6*
Zaaiplaats Tins . .	7 0	6 9	6 10*	7 0	6 7	6 6*
Union 5 per cent. .	£97½*	£98	£97½	£98	£97¼*	£97*
Hume Pipes	22 6*	21 6*	24 0	22 0*	22 0*	22 6
Modder Wests . .	18 3†	18 3†	18 3†	18 3†	17 6*	17 9
New States	25 3*	25 0*	25 9	25 3*	25 3*	25 3*
Rouxvilles	21 0	20 0	19 6	18 0	—	17 6*
South Van Ryns . .	7 9	7 6	7 6	7 6	7 6*	7 6*
S.A. Townships . .	10 6	10 0*	10 6*	10 6*	10 6	10 0*
S.A. Alkali	20 3*	19 0*	20 3*	20 6*	20 6*	20 6*
Transvaal Silver . .	41 6a	43 3	39 0*	40 0*	42 0a	40 6*
Do. Options . . .	—	—	—	20 0*	21 6†	20 0*
Tudors	—	—	—	1 0†	1 0†	1 0†
Victory Monarch .	60 0†	—	60 0†	60 0†	60 0†	—
West Springs	14 3*	14 6*	15 6	15 3*	16 0	15 3
Do. Options . . .	2 0	1 4	1 9*	2 3	2 3	2 1

*Buyers. †Sellers. aOdd lots. bEx London.

PERSONAL.

In our account of the annual dinner of the C. M. & M. Society last week, by a printer's error the name of the Secretary of the Society was misstated. It should have been Capt. Jefferies, O.B.E., and not as printed.

* * * *

Capt. T. L. H. Shone, J.P., mineral and gem explorer, discoverer of three mines in the Postmasburg area, has been appointed consulting engineer to the Postmas Diamond Prospects, Ltd., and Diamond Fields of Africa Exploring Co., Ltd.

* * * *

Mr. W. L. White has retired from the position of Consulting Engineer to the Johannesburg Consolidated Investment Company, Ltd., and is succeeded by Prof. Lawn, who continues as Joint Managing Director and Consulting Engineer with Mr. John Munro, who is Joint Managing Director in charge of the financial affairs of the company.

* * * *

Deep regret is felt at the death, at the age of 62, in London, of Mr. Norman Herbert Smith, senior member of the firm of Herbert Smith, Goss, King & Gregory, Solicitors, of 62 London Wall. This sad event occurred early on the morning of April 15, the proximate cause of death being heart failure. In city circles, Mr. Smith was greatly esteemed, and his advice much valued on all points of joint-stock company law. The firm acted in a legal capacity for a great number of companies, including the National Bank of South Africa and many mining enterprises. Mr. Smith was a director of the Sheffield Steel Products, Ltd., and also of Van Ryn Gold Mines Estate, Ltd. Sir George Albu, Bart., was his particular friend, and it was at his house he stayed during a visit to South Africa a few years ago.

"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

BY-PRODUCT COKE OVENS AND PLANT

THE SEMET-SOLVAY OVENS

BUILT BY

The Coke Oven Construction Co., Ltd., Sheffield

WILL GIVE THE BEST RESULTS AT THE LOWEST WORKING COST.

Several thousand Ovens have been built throughout Great Britain, France, Belgium and America, etc., amongst which will be found the following Firms:

BRUNNER, MOND & CO., LTD.	**BRYMBO STEEL CO., LTD.**
W. BAIRD & CO., LTD., 210 Ovens.	**UNITED ALKALI CO., LTD.**
WIGAN COAL & IRON CO., 132 Ovens.	**BOLCKOW, VAUGHAN & CO., 290 Ovens.**
STRAKERS & LOVE, 120 Ovens.	**JOHN LYSACHT LTD., 96 Ovens.**

THE BROKEN HILL PROPRIETARY CO., LTD., 156 Ovens. And repeat order, for a further 66 this year (1920).

Agents for South Africa, from whom all particulars can be obtained:—

HANNAM, BONSALL & CO.,
7, MAXWELL BUILDINGS, HARRISON STREET, JOHANNESBURG.
P.O. BOX 4236. 'PHONE 4907.

RHODESIA AND BELGIAN CONGO SECTION.

GOLD FIELDS OF THE BELGIAN CONGO.

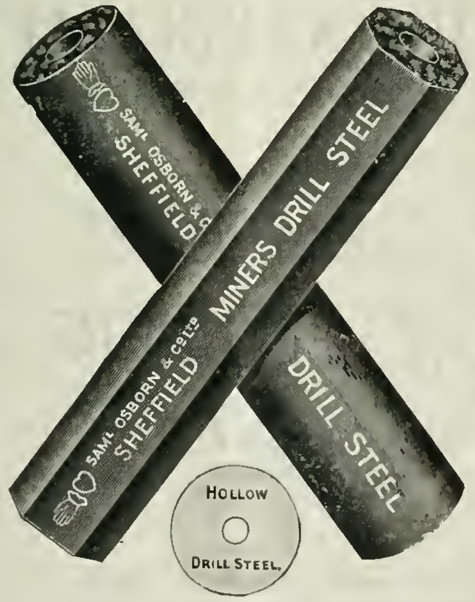
Africa's Largest Nugget—Kilo's Increasing Production.

Exhibition at the London branch of the Banque du Congo Belge of a nugget weighing just over 12 lbs., discovered at the Kilo State Mines a few months ago, has tended to direct a considerable amount of public attention to this remote area of the Belgian Congo. The nugget, which weighs 145 ozs., is 7 in. long by 4½ in. deep and has an approximate value of £1,150, is the largest ever found in Africa and is one of the largest discovered in the world. It will eventually be sold on behalf of the Belgian Government. The increase in output of the Kilo gold fields during the past few years, and particularly during the period of the great War, has been remarkable. During six months of 1919 production was 24,775 ozs., and for previous years the figures are as under:

	Kilogrammes.	Grammes.	Ozs.
1905	21	—	675
1906	212	—	6,815
1907	328	—	10,545
1908	311	—	9,998
1909	656	—	21,090
1910	876	—	28,163
1911	639	—	20,543
1912	740	—	22,505
1914	1,047	466	33,675
1915	1,623	259	52,196
1916	1,638	771	52,685
1917	1,793	111	57,615
1918	2,089	—	67,180

The completed figures for last year are not available at the moment of writing—the amount is approximately 80,000 ozs.—but it may be added that the comparative smallness of the output tabulated for the first six months of 1919 is due exclusively to an outbreak of influenza among the native workers—an outbreak the severity of which will better be realised when it is stated that Kilo is situated in essentially hilly country, where the temperature is so moderate that the native population is not by any means large at the best of times. At the present time Kilo's means of communication with the outer world are not great, but hopes are expressed that an improvement in this respect will be manifested at an early date. As a matter of fact, two projected railways aim at providing the goldfields with better facilities: (1) The Comminière line from Bumba, on the Upper Congo; and (2) the Upper Congo-Great Lakes line from Stanleyville. In the meantime, Kilo's communications with the outer world consists of a wireless station and a 125 kilometre motor road to Kasenyi, on Lake Albert. The Kilo State Mines are situated among the numerous goldfields of the North-Eastern Congo, which were discovered about 18 years ago. When gold deposits were first being searched for in the Congo prospectors were sent to various localities, each of them being allotted a certain specified portion of the ground under survey. One restriction, placed upon the scope of each prospector was, in effect, that he must not prospect outside his own particular sphere of activity. The prospector to whom the Kilo section was allotted made a comprehensive but unsuccessful survey of his ground, and ultimately decided that gold in payable quantities was not to be found. Consequently he asked to be allowed to forsake that particular territory in favour of another. The reply was, "Prospect again in your own zone." Prior to the cable reaching him, however, the prospector had "struck rich," and wired home announcing the discovery of the deposits which now form the Kilo Mines, and which promise to develop into an extremely valuable property. We understand that a group of influential capitalists have recently been considering the sending of a large expedition to this portion of the Congo.

PHONE 4673 BOX 3162



OSBORN'S

"HAND AND HEART" **DRILL STEEL**

Solid and Hollow.

LARGE STOCKS CARRIED LOCALLY.

SAMUEL OSBORN (South Africa) Ltd.

SHEFFIELD & JOHANNESBURG.

Heavy Cost of Paper.

Mr. Stanley Cousins, a member of the Fifty Club, an organisation intimately connected with the paper industry, was the guest at a luncheon in the Connaught Rooms, W.C., in mail week, and took advantage of the occasion to emphasise the serious outlook for all users of paper. Replying to the toast of his health, Mr. Cousins said that before the War Great Britain consumed and exported 33,000 tons of paper and boards weekly, of which two-thirds were manufactured in Great Britain. It was largely because paper was dumped there by Germany that prices had been kept so low, so that most British makers had not the heart to go ahead with new enterprises. Owing to the War they had come up against a world shortage, which was likely to last for some time, because as quickly as pulp mills were put down the world demand for paper would be increased. Consequently, unless they went ahead with pulp propositions speedily, the price was bound to keep up and might even go higher. The present quotations showed an advance of 600 per cent o. pre-War prices for pulps alone, and he could not agree that this was justified. If suppliers of raw material would be satisfied with a very handsome and substantial profit per ton, they could put their goods in at anything between four to four and a half times pre-War prices, and this would save the industry on raw materials alone, exclusive of that supplied by our colonies, nearly twelve millions per annum.

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union. Five Letter Edition.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

OUR SPECIALITY!
(NOT TO BE BEATEN).

MAGNETOS

! F. HOPPERT. !

MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:
Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Commercial Exchange Jogging Along—Unwise Tram Strike—Iron and Steel Quieter—Electrical Goods Up 25 per cent.—Mines Claiming Exchange Premium—Johannesburg Manufacturers—Natives in the Foreground—Timber and Better Work Required—Crisis in Existence.

A member of the Commercial Exchange remarked that things there were just jogging along, which is an apt description of the happenings in trade circles throughout the town. The unwise tram strike upsets local business, with the overhanging fears of shutting some of the lower grade mines. And the latest official information is that the Government proposes the reduction of the returned soldiers battalion by 241 men. Therefore one cannot be surprised that we are passing through a crisis, not a crisis that has to come, but one already upon us. This was illustrated by an auction property sale on Tuesday, when only one transaction was booked, in fact it was the worst of its kind for a very long while past. But there were no great bargains offering, which shows that owners are not, as a rule, pressed to sell. Judging from the Share Market, there is a steadier feeling in the mining world, as values have had a check in their downward career. It is quite true that several mines must shut down entirely through exhaustion, but the exaggerated ideas that a large number will close seems a little far-fetched. The way the men immediately concerned have agreed, at several round table conferences, to assist the various managements is a good omen for future meetings to keep as many mines as possible running. It is said that through the stir in affairs that more efficiency has already been shown of late, which is also encouraging. The terrible War and the super abundance of paper money have much to answer for in the extravagancies and easy-goings noticeable in all classes of society.

IRON AND STEEL.

On Tuesday, May 18, there was registered at Pretoria the South African Iron and Steel Corporation, with a share capital of £1,500.000, to work the iron deposits at Pretoria. This, coupled with the fact that the Union Steel Corporation are doing so well at Vereeniging, are sure and certain signs that a big bid is being made to establish the iron industry, which is the stable foundation for genuine and substantial prosperity. All this has been made possible through the Great War and its aftermath of a world-wide shortage of raw material in Europe and the high wages paid there. In Johannesburg business has quieted down; hanging fire as one merchant remarked. Steel plates are the feature, as they are scarce and ever on the upgrade, and at present are not manufactured in this country. One large shipment has just arrived at the coast from England, and all have practically been sold to arrive in Johannesburg. One eighth to arrive, 70s.; 3 16, 62s. 6d. to 65s.; 1-16, on spot, 72s. 6d. Other sizes average 50s. on spot or to arrive. An inquiry for mild steel bars, by cable to London, has so far failed to obtain a quote. A similar inquiry to America has received a reply that the price would be the current one ruling on the day of delivery from the factory, but no guarantee for delivery could be made during the next four months. The latest cables show that bolts and nuts have advanced a further 30 per cent. The prices here are 70s. per 100 lbs. for the heavier sizes, and 1s. 6d. lb. for the smaller kinds. Solid steel, 7½d. lb.; hollow, 1s. to 1s. 3d.; shafting, 7½d. to 8½d. Other cables just received say that values in all steel firm goods are rising, chiefly on account of Continental purchasing. A leading firm also advises that one large group is already in the market for their 1921 stock. Second hand tram rails of fourteens and sixteens were sold at £27 10s. per ton, f.o.r. That is a fair quotation although the recognised price was £25. There is a good demand for second-hand boilers, but the trade is quietening down in consequence of the nervous tension throughout all circles. The quotation for American and Canadian new rails is £35 per ton.

ELECTRIC GOODS.

An importer has received a cable from his London agent reporting that the orders sent by mail for general goods and accessories had advanced on an average 25 per cent. since the date of the indent. There is a shortage here of all electrical porcelain ware, also electrical wood work, as well as flex and lamps. Wire is fairly plentiful, with an advance of 15 per cent. over last month's quotations, and is likely to go higher. Business in town is quieter, but the country demand is still fair. Johannesburg quotations: Wire covered, 3/20, 30s. to 33s., 3/22, 27s. to 30s., 7/22, 40s. to 44s., 7/20, 55s. to 60s.; Lamps, 20s. to 24s. per dozen; Cleats, up to 35s. per 100; Flex, 55s. to 75s. gross yards; adaptors, 21s, dozen, as compared with 4s. 6d. and 5s. in pre war days

COMMERCIAL EXCHANGE.

The buyers of the various groups are making their own individual bargains with merchants. So much so that they have sent a letter to the several merchants they have accounts with asking what portion of the bank exchange premium they will allow. Or whether they prefer being paid two-thirds in London and the other third in Johannesburg. As a general rule indents are put on the buying boards of the exchange, and as competition is so keen it is the best way of regulating prices. Where the buyers are scoring a little is with the proprietary lines or sole agencies, in obtaining an allowance of the bank exchange. The fact is that the higher values and the slowness of business make all concerned get the last fraction out of a deal; therefore doing business on the exchange to-day is anything but a bed of roses. The railways and outside demands from Rhodesia and the Belgian Congo, as well as the alluvial diamond fields between Bloemhof and Kimberley, are assisting matters now the mines are so economical in their requisitions. Another thing happening is that the local manufacturers, some five hundred in number, in Johannesburg, are supplying quantities of goods to the mines without the transactions passing through the Commercial Exchange. One decent sized factory was inspected during the week where all natives, excepting

ALMOST
2,000 TONS IN STOCK

Dunswart, Vereeniging and
Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

the white man and a boy, were engaged. A remark was made as to the procedure, when the the answer came that all the raw material was so dear that unless every care was used in the expenditure it would not pay to run it. This was followed by another remark that the manufacturers themselves were such a cosmopolitan community that cohesion was altogether impossible, therefore each one had to do the best he could for himself. It was surprising how well some of the natives handled the smith's work, lathes and drilling machine.

TIMBER AND BUILDING MATERIAL.

Baltic timber is very scarce and no shipments are expected before June, as the Baltic only opens, after its winter closing, in April May. If it were not for the lull in the building trade, more particularly in the taking up of new contracts owing to the scare created by the proposed rent-profiteering Act, timber would be higher on account of the local shortage. There are several new residences on the Berea being kept vacant as the builder's plan of operations was to sell rather than rent, and to that end the price has been dropped about £200, as business is pretty much at a standstill, which was illustrated at a public auction room previously mentioned. Another point is the general anticipated unemployment question, through various causes, the chief being the closing down and retrenchment on some six mines. Deals are 2s. to 2s. 3d.; floorings, 11½d., and ceilings 7½d. per foot. Roofing iron is higher at 1s. 9d. to 1s. 10d. per foot. Although the building trade is experiencing a lull there is a shortage of the more expert workmen. The fact is that the houses are being finished off in better style, and a lot of South African and other hard woods are used for doors, stair cases; also cupboards, wardrobes and similar furniture are built in the recesses and walls. All this has to be prepared in the local builders' workshops or at the factories which have sprung up to make all kinds of builder's joinery, shop fronts and so forth. After the lull and when (?) we get cheaper living the building trade must come all right with the influx of Europeans—and they are sure to come. For example Reuter has cabled out that there are seven vessels, with an aggregate tonnage of 100,000 tons now under construction at Belfast for the Cape route.

WHY THE "PRINCESS" CLOSED—AND OTHERS.

The reasons officially given are: (a) Shorter hours worked; (2) increased stringency of regulations; (3) employment of less experienced men: (4) increased mining difficulties; (5) redundancy in employment. The Government had not seen its way to desist from adding to the burdens of poor mines. On the other hand, to their great honour, the coal owners had differentiated between the poor mines and those better off. Working costs, mainly as the result of the further concession in pay and privileges made to European and native employes, in common with the rest of the mining industry, increased the cost 3s. 3½d. per ton above the 1919 average. This was occasioned by a falling off in the yield of 3s. 5½d. per ton. So the board, with all the facts before them, decided to cease mining—and no board could have decided otherwise.

OTHER PROPERTIES AFFECTED.

The Minister of Mines stated in Parliament on Tuesday: "The following are the mines likely to close: Princess Estate, Simmer Deep, Jupiter, New Kleinfontein (Apex area), City and Suburban (to be absorbed by the City Deep) and New Heriot. The Department had also received notice of the curtailment of operations of the Aurora West, Durban Roodepoort Deep, Luipaardsvlei, New Goch and Village Main Reef. The Chamber of Mines and workers are discussing the situation of each mine frankly, with the view to arriving at the best method of meeting the emergency by retrenchment in certain cases, and by reorganisation. The Government does not propose to interfere in the arrangements thus being made."

NATIONALISATION.

On Sunday, May 16th, a resolution was passed by a large number of delegates to the Mine Workers' Union in Johannesburg: "We demand from the Government the immediate nationalisation of all gold and coal mines, with control by the workers."

The following are extracts from an article in "The London Magazine" for February, 1920: "Nationalisation, the balm and the hope of workers, has been in force in Australia for many years, and not one industry, with its army of national officials, has paid, nor shows the least hope of ever paying. The working man of Australia is crying out at the present moment for the nationalisation of the coal mines. By the coal miners' strikes in the past the great coal export trade of Australia was ruined, and since then no commercial effort has been able to regain it. In every instance in Australia nationalisation has lowered the products and increased the cost thereof. Mining, which at one time stood in the same rank as wool and wheat, one of the main industries of Australia, is, in these times, suffering a slump that will leave the country the poorer for many years, and the industry can only be safely revived by legislative compulsion on workers to adhere to reasonable terms as regards wages and work. In the last year or more British capital has been gradually withdrawn from Australian mining ventures. One strike after another in quick succession has exhausted, if not ruined investors, and the output of minerals in Australia to-day is the lowest on record. The Federal Government and the State Government of Queensland have each experimented in nationalising certain mining areas, etc. The mines of Northern Queensland at one time gave profitable employment to many thousands of men. That meant the opening up of the country, the building of railways, the settlement of farmers, the progress of an immense district, and increasing population. The efforts of nationalisation anywhere in Australia have not brought prosperity to any district, have not lengthened railways by one inch, and population, as in North Queensland, has dropped through commercial depression by thousands a year. The result is that strikes, high wages, short hours, abortive nationalisation and slow work are likely to accomplish industrial suicide in a land that by the lavish gifts of nature, might easily be the land of the most remarkable and progressive people on earth."

INDUSTRIES AND EMPLOYMENT.

The Johannesburg Inspector of White Labour, in his report on the work of the bureau during April, gives the number of applications by workers, as: Men 216, juveniles 121, women 132. The demands from employers were: Men 68, juveniles 63, women 86. Work was found for 68 men, 50 juveniles, and 105 women.

In the course of his remarks the Inspector says:

Leather Manufacture.—Trade is good at present. Supplies are plentiful, but prices remain very high. Future prices most uncertain.

Cardboard Box Manufacture.—This industry is very slack at present on account of the scarcity of supplies and machinery. Prices show a tendency to rise still higher. There is a shortage of experienced workmen.

Electrical Engineering.—Trade fairly good and supplies free. Prices steady with upward tendency. No shortage of workmen.

Building Material.—Trade is fairly brisk, but rather quieter than recent months. Supplies are short just at present, but good stocks are expected to arrive shortly. Prices remain firm, and are inclined to advance. Good workmen are badly wanted. A lot of building is being held up pending Government decision regarding the control of rents.

Bakers and Confectioners.—Trade is brisk, but flour is very scarce and dear. Prices are still rising and have a tendency to continue upwards. Present supplies are mostly of inferior quality.

Brush and Broom Manufacture.—Very fair. There is a great scarcity of hair which is required for the manufacture of hair brooms, etc. Prices stationary except for hair brooms, which are higher.

Coach Building.—Business is fairly good. Prices remain high and are not likely to come down for some time. Supplies are fair though far from sufficient. There is still a shortage of good, reliable men. Bodies of motor cars are now being manufactured locally.

Agricultural Implements and Fencing Materials.—Trade is good Prices are likely to remain high. Supplies are scarce, but there is no actual shortage at present.

Furniture.—Busy. Supplies free. Prices unchanged.

Grain Milling.—Quiet. Wheat is scarce and dear. Prices are likely to go even higher. Fresh supplies of wheat are expected from South America. There is very little change in the mealie market, prices remaining about the same as last month.

The Pretoria Inspector reports 212 applications for employment, 64 applications from employers, and 42 vacancies filled. The corresponding figures in March were 232, 73 and 66. Business and trade generally are reported as busy. Clerical work was slack, and it was difficult to place men.

As to the unskilled labourers, out of 88 applicants only five could be sent to work. There was no demand for that section. Conditions were acute. Many families were supplied with rations to keep them going. If no relief in the shape of work was forthcoming soon the dependents were bound to suffer a great deal.

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:

46 Survey Certificates to date, including three Honours Certificates.

Other coaches have obtained one Survey Pass to date.

Last three Managers' Examinations we lead with passes.

We established a percentage record of passes, January, 1920, Managers' Examination.

We lead with Overseers Passes, 1918 and 1919, combined.

WRITE FOR PARTICULARS AND CLASS TIME TABLE.

OPTION ON

Grand Transvaal Coal Proposition

On the Railway Line, near Carolina.

This Property is an adit proposition and could be worked at a minimum cost. Adjoins a Coal Property and lies above the present railway line.

Easy terms to be arranged. Shares in existing Company, or Company to be formed preferred.

Apply to **Box 145, Harrismith.**

ENGINEERING SECTION.

ELECTRICITY AND INDUSTRIAL DEVELOPMENT.

(By E. G. Izon.)*

Mr. President and gentlemen, you have asked me to say a few words to-night on the subject of the application of electrical power to the development of the resources of the Union. I have had very little time to prepare any notes or to hunt up any papers or books so that I can pass off on to you 'something which is supposed to be my own but which is really somebody else's Consequently I have to rely largely on my memory and to give you as briefly as possible a few impressions of the benefit of electrical power to the resources of the Union or, probably what is of more importance, what the resources of the Union can be made into.

It seems to me electrical power is not going to help the resources so much as the resources will help electrical power, and, in turn, the electrical power will react by giving assistance to the resources of the Union.

The resources of South Africa mostly lie under our feet--that is in the ground, and, to a large extent, from what I have seen lately of the possibilities, it is about time someone got busy and started to dig them up.

Taking probably four of the principal resources of the Union, I would classify them as these: agriculture, or the proceeds of agriculture, coal, iron, and other base metals.

Taking the first—agriculture, or the proceeds of agriculture: in what way can electricity be applied to help these resources? I see very, very little, except in the way of assisting to get our products to the coast for export; and while I am on that one subject of export, it brings me to what I think is the most important subject of all connected with the resources of the Union.

Following agriculture, you have coal. Coal, to my mind, is probably one of the largest natural resources we have in the Union to-day. If you follow the history of all countries that have prospered, you will find coal and iron have been the basis of their prosperity. I put iron third because I think it will come third Bunker coal to-day is put on board at Delagoa Bay at 24s. to 25s a ton. Bunker coal in England to-day is between £4 and £5 a ton. To-day coal in this country is only being played with. But what else can we do? We know there are large seams of coal of high value, easy to work, which can be mined at a cost of anything between 3s. and 5s. a ton. But what is the use of these large coalfields to us unless we can get the product to the coast for export? Only to-day I was told that Delagoa Bay was waiting for 70,000 tons a month more than they can get one Port! But lack of transport is hampering the progress; therefore, I say again, one of the principal factors in the use of or the getting away of coal and adding to the prosperity of the country is to obtain quickly better transport facilities, and electrification of certain sections of the railway has been recommended by the Consulting Engineers, Messrs Merz and McLellan, and the Railway Administration is now considering it; but until better facilities are provided for handling bigger tonnages, I am convinced that the country will continue to be hampered in its progress.

Then, we have iron. I do not see how the development of iron and steel industries can benefit for some time to come by the use of electrical power. That this country will, in 15 or 20 years' time, be a large iron and steel producing country I believe is a fact Let me give you one or two instances. In England to-day blast furnace coke is 57s. a ton, Bilbao ore to-day, guaranteed 50 per cent., f.o.b. Middleborough, is 64s. 6d. a ton. In this country to-day you can put iron ore containing 60 to 65 per cent. pure iron at a blast furnace say 50 miles from Johannesburg at a price of about 6s to 8s. per ton; that is say one-eighth of the cost of what they are doing it at in England. You can probably produce here a good blast furnace coke, if proper methods are applied, at 15s. a ton. With those two factors, I am satisfied there is nothing to stop the development of the iron and steel industry of this country on a scale which none of us even dare dream of to-day. As I have said, I think electricity can help very little in the starting up of works, except in connection with the transport of material to the coast Electricity will benefit afterwards in this way, that when once you start an iron and steel industry in this country and, after all, with the low cost of fuel and with knowledge that you can use the gases from your fuel for your steel works -- then, I say, later on we shall find steel manufacturing concerns growing in this country to utilise the products of our iron and steel works, and then when that is done electricity will have to be brought more and more into use, and it will benefit all these works that start up, in that it will reduce manual labour to a minimum. Labour here to-day is fairly cheap, but electrical power cannot be done without: still I do not see that is where I differ from my friend, Prof Buchanan in what way electrical power can be of great use in the actual development of an iron and steel industry.

In this connection, I would also like to refer to the question of by-products. There is much nonsense talked on this subject of by products. What many forget is that the capital cost of plant out here is very much higher than in England, and that the consuming population is very much smaller. Therefore, this talk about the extraordinary commercial success which is going to be obtained through having big by-product installations is, in my opinion, likely to be harmful, and I am rather inclined to think that the remarks in that connection by certain people are made without giving it serious thought. Only those who are buying material to-day and framing estimates for the laying out of plant know what the costs are, and, when you come to think that plant to-day is probably costing two to three times as much as it did before the War and that you have to get thrice as much profit in order to pay interest on your capital, I believe that the cost of plant in this country is going to "sprag" a large number of enterprises, unless there is a big margin between expenditure and revenue, which it is not possible to get with by-products. So that I say unreservedly and quite openly that I believe there is a long, hard row to hoe before the production of by products can become of any use to this country.

Reverting again for one moment, if I may, to the question of agriculture. I said electricity would not be of much service, but I would impress on all engineers who have the chance of studying the subject, the necessity for being able to use tractors here with some fuel other than the highly expensive one we use to-day. You have probably read some of the papers in England on the Smith gas producer, where they are burning anthracite or coke, and, according to the figures, they are able to obtain the same results at about one-fifteenth the cost of petrol. I think that fuel costs for tractors to-day are hindering the development of agriculture. The old method, although a cheap one, viz., that of ploughing with six oxen, is, to my mind, obsolete, as far as this country is concerned. Tractor work will open the country up enormously; it will develop the country. It is a wonderful land to develop, and it has got to be done on a much bigger scale than at present. It can only be done with mechanical appliances. If tractors can be worked with a gas producer, or with a fuel very much cheaper than petrol is to-day, I say there is an enormous future for agricultural development in this country.

There is one other small point connected with the development of the resources of the Union—one in which all engineers can give a hand, one which is of vital importance to the whole of the Union of South Africa—that is, to try and instil into the minds of those with whom you talk and those whom you control, the question of increased production. You may say it does not affect the question of application of electrical power, but unless everyone who is a producer will produce a little bit more than he has done in the past, and unless every man will do his best to try and use his powers to produce more, then, I say, the resources of the Union can never be what some of us who believe in the country believe they will be at a later date.

Experiments have been made all over the world with all sorts of new theories, I do not know whether you have seen in the mail papers this week the reports of the question of increased production. There a statement is made which I think everyone should appreciate—it is regarding the experiments on Bolshevism. The reports state that Bolshevism consists of cutting the heads off half those who control industry and then calling on the other half to come back and run the industries at fabulous prices. We none of us want to see the heads of half our friends cut off, but what we do want to see is that everyone with whom we have to work should do a little bit more than they have done in the past; and I firmly believe in the influence of engineers to drive the truth home. We are going through troublous times and it is going to be worse later on, speaking specifically from the gold mining point of view I feel certain that before we can properly discuss the question of electrical power for the resources of the Union, we have all got to be content to do time and a quarter If we do that, I am convinced there is a bigger future for this country than there has ever been for any country in the world's history

Liquid Air for Blasting.

The *Iron and Coal Trades Review* for March [illegible] describes the application of liquid air as an agent for blasting, as adopted at the Kladno coal mines, Bohemi

---

* From address before the S.A. Institute of Electrical Engineers

THE PRETORIA PORTLAND CEMENT INDUSTRY.

A Discription of the Modern Cement Making Processes Employed.

Although the manufacture of Portland Cement has assumed proportions that have conferred upon the industry national importance, and although one of the biggest factories is situated at the administrative capital, it is a remarkable fact that the majority of Pretorians are aware of little more than the mere existence of their largest industry. This is unquestionably due to the fact that the works are situated just beyond the outskirts of the town, and are, morever, hidden by a low range of hills. The name "Hercules" conjures up the idea of strength, and it is doubtless this association that led to the choice of the classic name as the designation of the railway station, which, situated on the Pretoria North line, serves the mills of the Pretoria Portland Cement Company, Ltd. The station is situated but a stone's throw from the company's offices, which, standing alongside the railway line, look down upon the dusty mass of buildings, of various shapes and sizes, that form the works. As is the case with so many South African factories and workshops, the buildings, with the exception of the administrative offices, are built of corrugated iron, but they are well constructed, and, as far as a layman can tell, conveniently designed.

THE DRY AND WET PROCESSES.

A brief description of the principal processes will perhaps prove of general interest. The particular type of manufacture employed at the Pretoria works is that technically known as the "dry" process, in contradistinction to the "wet" process, which forms the feature of the same company's works at Slurry, near Mafeking. The two prinicpal ingredients of Portland cement are limestone and shale. The Pretoria factory obtains its supplies of the former material from Pienaars River, whilst the shale is from the company's local quarry. In England, clay is used for the purpose, but as clay is really decomposed shale, the latter material serves equally well. The visitor to Hercules may see large quantities of limestone lying in great heaps alongside the railway tracks that run into the yards. This material is conveyed to a shed, where it is weighed and the requisite proportion of shale added. This latter factor is ascertained by frequent analysis of samples of the limestone, the composition of which is subject to variations, which have to be accurately balanced by the addition of shale.

OUTLINE OF THE PROCESSES.

The materials are weighed in a hopper with a drop bottom, beneath which lies a skip at the bottom of an inclined way. The skip with its quota of limestone and shale, is then hauled up and its contents tipped into a hopper which feeds a pair of rotary crushers. A preliminary crushing takes place here, after which the material, now thoroughly mixed and reduced to a comparatively fine state, passes through a rotary dryer which is 50 feet long by 5 feet in diameter. The whole object of this drying is to make it possible for subsequent plant to grind this raw mixture to an impalpable powder. Discharged from the dryer this crushed and dried mixture passes through a large ball mill, where it is ground to a fineness of $\frac{1}{4}$ inch or less. From here it is ground further by Fuller-Lehigh mills —six small ones and two large ones—to a fineness of flour. The raw material is now ready to pass through the kilns, as it is of a proper chemical mixture and ground to the necessary fineness, so that, when burned, every particle of lime will combine chemically with the particles of shale to form the silicates and aluminates of lime, of which Portland cement is composed. This mixture is introduced in its powdered form into the ends of two rotary kilns 125 feet long by 8 feet diameter; as the kilns are erected on a slight incline, the powder gravitates down to the firing end of the kilns, and as it passes through the "burning zone" with an approximate temperature of 2,600 degress F. it balls up into what is known as clinker as a result of incipient fusion. This clinker automatically discharges from the kiln in a hot, steady stream; and the operation from the time the powder enters the feed end of the kiln until it is dicharged required about an hour and a half. The material now passes through a cooler, which comprises a long rotating cylinder with elevating blades to drop the hot clinker through cool air. Water is used to assist cooling; and the material is then removed to a covered area, where it is allowed to lie in heaps for about a fortnight. A small percentage of gypsum is added at the time of grinding the clinker, as a means of regulating the "set" of the cement. The clinker now pases through two sets of Giesecke ball mills and slug tube mills, after which it is ready for packing and shipping.

THE WORK OF THE CHEMIST.

Such is a brief outline of the method of manufacture. The processes are highly spectacular, involving as they do huge powerful mills, roaring furnaces, enormous rotating cylinders, endless-belt conveyors, and bucket carriers, and so on; but nothing like a true insight of the work is obtained without some consideration of the part which the chemist plays in these Titanesque operations. The company employs a staff of chemists, who may be said to have a sensitive finger upon the pulse of the works. The object of a cement factory is not simply to produce cement, but to produce cement of unvarying excellence—a material relied on by the consumer as constant. This is obviously a matter of great importance, without which lasting success cannot be achieved, and it is the chemist's business to see that the standard of quality is steadily maintained. A word in conclusion about the future. At the time of our visit, the factory was working at full pressure, yet is was four months behindhand in its execution of orders for cement. When it is realised that the Pretoria factory is but one of three such concerns in South Africa, and that the other two establishments must be supposed to be equally hard put to it to meet the demand, the possibilities of the industry in the future begin to present themselves to the imagination in a rosy light. And it is interesting to know that the layman's faith in this direction is supported by a very hard material fact, namely that the Pretoria Portland Cement Company, Limited, is about to increase its capital to the extent of £60,000 by means of the issue of new shares, for the purpose of laying down further plant at its Slurry works. Which serves to illustrate the company's own faith in the future of cement manufacture in South Africa.—*Journal of Industries.*

Rennerfelt Electric Furnace.

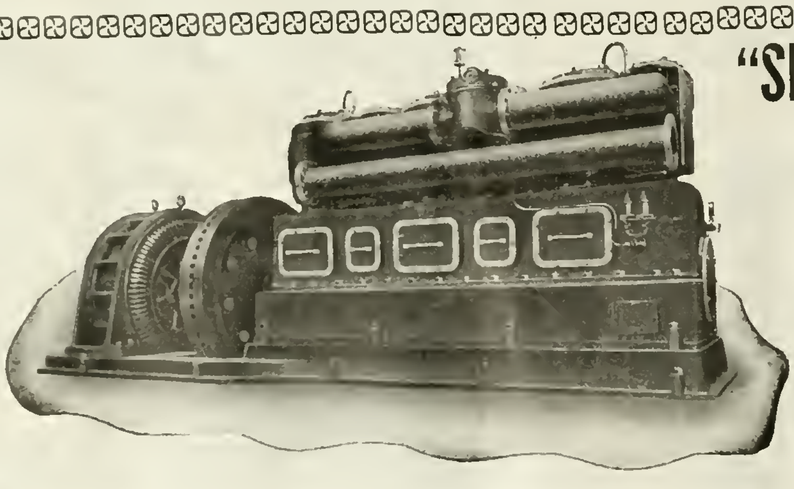
In *Chemical and Metallurgical Engineering* for February 11, H. A. de Frees describes the Rennerfelt electric reverberatory furnace.

Pumping by Air-Lift.

Mining and Metallurgy for February contains a paper by S. F. Shaw describing the unwatering of the Tiro General, Charcas, San Luis Potosi, Mexico, by means of the air-lift.

Air-Compressor Drive.

The *Colliery Guardian* for March 5 and 12 contains a translation of an article by A. Dessemond, appearing in the *Bulletin de la Société de l'Industrie Minerale*, describing the application of exhaust steam from winding-engines to operate turbines driving air-compressors.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessability, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

The Week's Meetings.

MODDERFONTEIN DEEP.

At the nineteenth ordinary general meeting of shareholders of the Modderfontein Deep Levels, Ltd., held in the Board Room, Consolidated Buildings, Johannesburg, on May 19th, Mr H. Newhouse, the chairman, stated that at each annual meeting since the inception of the company it had been his pleasure to review a year of progress. The past year was no exception to its predecessors. Dealing first with the working results, the chief feature was a gratifying increase in the yield per ton crushed, which at 43s. 9d., taken on the basis of the standard price of gold, was 2s. 10d. better than in 1918. Two factors contributed to this improvement—firstly, the higher grade ore developed in recent years became available for stoping, and secondly sorting was considerably increased during the past year. The duty per stamp per day averaged the very high figure of 24.1 tons—a record for the mine—and this enabled 1,100 more tons to be handled than in 1918, in spite of the running time being affected by the additional holidays granted. Though the improvement in the grade was off-set to the extent of nearly 1s. per ton by an increase in the working costs to 18s. 5d. per ton crushed, due mainly to the heavier burdens imposed since August by the new Miners' Phthisis Act, which increased the charge to be borne by the company under this head from £3,100 to £21,000 per annum, the net result of the year's operations was an increased working profit of £49,586, the total being £643,437. Adding to this an amount of £112,013, received in respect of the premium resulting from the new arrangement under which the product of these fields since the 25th July last had been sold in the open maket, sundry revenue, chiefly interest, £6,883 and a small adjustment in respect of the 1918 gold, the total was brought to £764,426, or £161,550 in excess of the 1918 total.

Taxation Absorbs £124,259.

Of this, taxation absorbed £124,259, or about one-sixth, and donations, depreciation written off, and expenses in connection with the sub-division of the shares, accounted for £35,706, leaving £604,461 to be added to the balance of £136,101 standing to the credit of appropriation account, and bringing the total amount at credit in that account to £740,562. Dividends Nos. 9 and 10, of 50 per cent. and 65 per cent. respectively, together with two small items, absorbed £578,939 of this, leaving an unappropriated balance of £161,623, which was £25,522 more than the net amount brought forward from 1918. The company's finances were on a particularly sound footing.

Of the tonnage crushed during the year 2,770 tons came from the surface dump, reducing this to 182,600 tons.

Another feature of the year's operations was the development work accomplished. The total of 7,134 feet was an increase of 1,709 feet over the 1918 footage, and the values disclosed were highly satisfactory. As the result of this work the ore reserves, on recalculation at the end of the year, showed an increase for the year of 325,000 tons, the total of 3,775,000 tons being equivalent to a mill supply of about seven years, while the average value of 9.1 dwts. was about one-third dwt. higher than the average of the previous year and the width an inch less. The calculations were made on exactly the same basis as in previous years, no allowance being made for the premium on gold.

The policy of gradually reducing the stock of stores carried until a normal quantity was reached had been continued throughout the year. The process had of necessity to be a slow one. The reduction for the year amounted to £10,730 and at the end of the year an amount of £15,526 was written off, leaving the book value of the stock on hand at £47,809.

The native labour supply available was sufficient for all requirements throughout the year and the health of the natives continued to be satisfactory. Attention was at present being directed towards improving the arrangements for lowering and hoisting the natives, with the object of accomplishing this operation more quickly.

This Year's Operations.

As regards the operations during the first four months of the current year, the yield per ton crushed, based on the standard price of gold, had averaged 45s. 4d., a further increase of 1s. 7d.; but working costs, as the result chiefly of the increased pay granted to employes both European and native, have risen by more than double this amount to 21s. 9d. Hence the profit per ton, at 23s. 7d., was 1s. 9d. below last year's average and totalled £198,756 for the four months. The definite amount to be added to this in respect of net premium on gold—i.e., premium obtained in London less Johannesburg—London exchange—could not be ascertained until all the gold ad been old, but the estimated figure of £77,840 might be taken as a close approximation. The development results for this period had been a total of 2,406 feet accomplished, of which 1,170 feet had been sampled, the payable portion of this footage—765 feet—having an average assay value of 15.9 dwts. over 49 inches.

Two important operations of a financial nature were brought to a successful issue last year—the £1 shares were subdivided into four and the shares formerly held by recent enemies were bought by the company, in so far as they were vested in the Union Custodian, and distributed to shareholders either at the purchase price or by way of dividend. 44,513 5s. shares were and are—as far as is known—vested in the Public Trustee of the United Kingdom and the dividends accruing on these were still being paid to him.

The report and accounts were adopted.

In reply to Mr. D. C. Greig's question as to what the South African holdings in the company were, Mr. Newhouse stated that there were approximately half the capital.

GEDULD PROPRIETARY.

At the nineteenth ordinary general meeting of shareholders of the Geduld Proprietary Mines, Limited, held in the Board Room, Consolidated Building, Johannesburg, on May 19th, Mr. H. Newhouse, chairman of the company, stated in the course of his report that the results obtained by the company in its operations during the past year showed but little variation from those of the previous year if the influence of the new arrangements for the disposal of gold were left out of account for the purposes of the comparison. The quantity of ore treated in the mill was further increased by 2,800 tons to 516,000 tons and this was accompanied by an improvement in grade of 10½d. per ton to 30s., but the benefit of these advances was off-set to the extent of 7d. per ton through an increase in the working costs to 20s. 7d. per ton, with the net result that the profit on working was £9,178 higher at £243,420. Economies in working were effected in many directions during the year. The gross profit for the year was £335,342, which was over £90,000 more than that for 1918, this result being mainly the outcome of the receipt of an amount of £77,757 by way of net premium on the gold produced from July 25th onwards. Of the amount of £335,342, development in excess of the amount charged to working costs absorbed £24,528 and donations and provision for taxation £43,261, leaving £267,553 available for appropriation, plus the net balance of £3,129 brought forward from 1918, or a total of £270,682. Out of this amount, £187,397 were required to meet Dividend No. 10, which took the form of two of the purchased enemy shares for every 25 shares held, £75,000 were appropriated for capital expenditure, and two small items brought the total appropriated to £266,959, leaving £3,723 to be carried forward to the current year's accounts. The total expenditure on capital account for the year was £113,667, of which £38,667 was debited to working capital account and the balance of £75,000 was appropriated from working profits. Of this expenditure, £74,781 were in connection with the new No. 7 Shaft and £37,970 were spent on underground work at the other shafts and equipment. In addition, the active development policy entailed the expenditure already mentioned of £24,528 over and above the amount provided by the charge to working costs of 2s. 9d. per ton milled. The ore reserves at the end of the year showed an increase of 70,000 tons for the year and stood at 2,580,000 tons of an average value of 7.4 dwt. over a stoping width of 61 inches. These calculations were made on exactly the same basis as in former years, no allowance being made for the enhanced price now being realised for gold.

The New No. 7 Shaft.

The new No. 7 shaft had attained a depth of 442 feet at the end of last month. After a period of delays in erection of equipment, caused through difficulties in obtaining skilled labour and supplies, sinking was hampered by the tapping of a fair quantity of water in the dolomite. The rate of sinking was henceforward expected to increase considerably, so that it was hoped the shaft would reach the reef in the early part of next year. The cementation of water-bearing fissures was continued throughout the year and resulted in a further diminutoin of 35 million gallons in the quantity of water pumped and baled, excluding that from the new shaft. A comparison with the year preceding the adoption of this process shows that a reduction of over 45 per cent. has been effected in the quantity of water handled, the total for last year being 510 million gallons and that for 1916 988 million gallons.

The combined effect of increased pay to European and native employes had been to send working costs up 2s. 10d. per ton to 23s. 5d. The working profit for the four months totalled £62,131, to which net premium is estimated to add £54,681 and sundry revenue less sundry expenditure £4,706, making a total of £121,518. £18,773 had been expended on capital account and £9,331 on excess development.

As regards the current year's development work the total footage accomplished to the end of last month was 5,861, of 3,135 feet were sampled and disclosed 1,250 feet of payable reef having an average assay value of 20.1 dwt. over a width of 35 inches.

The features of this year's work had been the serious decrease in the net premium and the heavy increase in costs already referred to. The fall in the net premium that is the London premium on gold less the Johannesburg-London exchange was, of course, due to the fall in the London price of gold accompanied by the rise in our exchange. Good judges seemed to expect the London price of gold to rise during the next few months because of the large payments which the United Kingdom would soon have to make to the United States. The benefit of the net premium had, however, already decreased very largely on account of the increase in costs.

Sympathy with the relatives of the late Senator S. Marks, one of the directors of the company and associated with it since its inception, was expressed.

The chairman reported that Mr. Isaac Lewis had been appointed as a director in the place of the late Senator S. Marks. This appointment was confirmed.

VICTORY DIAMONDS.

Extraordinary General Meeting.

An extraordinary general meeting of shareholders of the Victory Diamonds, Ltd., was held at Exploration Buildings on May 14, Mr. Leopold Lewe, chairman of the company, presiding. There were represented at the meeting 715,500 shares out of an issued capital of 1,250,000. The meeting was called to make certain amendments in the original articles of association as advertised in the "Government Gazette." The chairman in submitting the amendment took the opportunity of congratulating the members on the excellent position which the company was in to-day. The company originally purchased the property known as Mahura Muthla at Rietfontein, on which farm from three trial washes diamonds were recovered averaging from 20 to 23 carats to the hundred loads, these being valued at about £20 per carat. Previous to acquiring this farm diamonds to the value of about £20,000 at the present market prices had been recovered and sold. Plant has now been erected to enable a continuous treatment of the ground, which treatment is expected to be carried on immediately the rails and cocoa-pans have arrived. From the foregoing excellent results, both as to the quantity and quality of diamonds found, good returns may be expected in the near future. Besides this property, the company has taken over the concession over Paardeberg East, a property of excellent prospects, and on which quite a number of diamonds have been discovered, and past reports show that as many as 30 carats to the hundred loads have been recovered thereon. Very favourable reports on this have also been made by Mr. Minnett Frames and others. There are now two washing plants on the mine under the management of Mr. George Ingham, and operations will be commenced within a week or two. Diamonds in hand up to the present moment are over 100 carats.

Other Large Interests.

Besides the aforementioned properties, the company has acquired the rights over huge diamondiferous areas reported upon by Mr. Heiberg, in extent about 800 square miles. According to reports to hand, and which were laid on the table, single stones up to 32 carats were discovered in blue ground at a depth of about 50 feet, and in sifting some sand of some of the other properties, a matchbox full of diamonds had been recovered in a few hours, which in quality and brilliancy were equal to those found in South-West. This occurrence is decidedly similar to the Pomona venture. An expedition was dispatched from here with a complete outfit last month, and working operations are well on the way, and the board is now anxiously awaiting the result of this expedition, but another two or three months may elapse before definite news is to hand owing to the great distance from the railway. Further to this the company has acquired a large area, about 75 square miles, in the Douglas district, from where likewise diamonds up to a size of 90-carat stones have been found as per certified register, and on the adjoining properties diamonds to the value of about a quarter of a million were discovered. The company's consulting engineer, Mr. V. Grindley Ferris, is proceeding there during the present month to further investigate and report.

The capital of the company has been increased from £60,000 to £120,000. This increase of capital was mainly for the purpose of acquiring 200,000 shares in Emerald Diamonds, Ltd., at a cost of £100,000. Besides this purchase, the company has an option over a further parcel of shares in the same concern. The acquisition of the 200,000 shares alone doubles the value of the company's stock. From the documents and reports on the table shareholders could see that during the time of the company's existence, about nine months, it had never been in a sounder position than it is at the present moment.

The amendments to the articles of association of the company were agreed to unanimously.

The Australian Oil Shale Industry.

The granting of some financial assistance or reward by the Government with a view to developing an oil or oil shale industry in South Africa has often been urged in these columns and as illustrating how enterprise in these directions can be encouraged it is interesting to note the following contained in a circular which has been issued by the directors of the Commonwealth Oil Corporation giving information as to the progress of operations. The total net profit and bounty at 30th September last was £69,876, of which one-half is due to Mr. John Fell, the managing director, in the terms of his agreement. In the course of the circular it is stated: "Since Mr. John Fell returned to Australia progress has been made with the large 100-ton retort, which is now reported to be approaching completion and nearly ready for testing. Labour unrest has been general in Australia, and portions of the mines have been shut down from time to time owing largely to differences between the two principal unions, also over the question of introducing shale-cutting machinery into the mines. Advice has just been received by cable that a settlement has been amicably and harmoniously arrived at which permits the introduction of the shale-cutting machinery. A cable received from Mr. John Fell reports the net profit and bounty earned during the six months ended 30th September last to be £26,251. This sum, added to the accumulated profit and bounty already in hand, makes a total of £69,876, of which one-half—namely, £34,938—is due to the company in terms of the agreement with Mr. Fell. The quantity of shale retorted and crude oil and naptha produced during the past six months compared with previous periods was as follows:—
Six months to 30th September, 1918: Shale retorted, 14,000 tons; crude oil and naptha produced, 1,350,000 gallons.
Six months to 31st March, 1919: Shale retorted, 16,000 tons; crude oil and naptha produced, 1,380,000 gallons.
Six months to 30th September, 1919: Shale retorted, 18,000 tons; crude oil and naptha produced, 1,660,000 gallons."

* * * *

Mount Morgan.

We regret to hear that Mr. G. Sharpley has abandoned the Mount Morgan proposition. The ore is refractory, and although several have tried to master the trouble during the last thirty years, none, so far, have succeeded. Mr. Sharpley seems to have been the most successful of the many triers, for had working costs remained lower, he could have kept going. His plant is being sold by auction. Mr. Sharpley, we understand, is going to Rhodesia.

TRIXIE LIMITED

(Registered in Southern Rhodesia, and under Section 198 of Companies Act 1909 of Transvaal Province.)

All Shareholders in the above Company should have their shares registered. The Company's books will be open until 31st May, 1920.

RAYMOND F. BURNIE, Secretary,
Box 5260. B7, Consolidated Bldgs.,
Johannesburg.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] MAY 29, 1920. [No. 1496.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: "**MINING JOURNAL.**"

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 295
Topics of the Week:
- Mining and Railway Questions in the Union Parliament 297
- Idle Mines and Their Plants 299
- The Rand's Recent Output and Profit Fgures 301
- The Question of Native Trading on Mines 303
- The Year with the Vereeniging Estates 305
- The Week in the Sharemarket 307
- British Trade with South Africa 309

Trade and Industries Section:
- The Week in the Mining Material and Engineering Trades 311

Engineering Section:
- A Grain Elevator System for the Union 315
- New Industry for Lourenco Marques 316

Company Meetings: New Kleinfontein; New Geduld Deep 317

Notes and News.

Company Meetings.

In another part of this issue will be found a full report of the annual meeting of the Vereeniging Estates and of the New Kleinfontein Co., Ltd. Both may be left to speak for themselves as covering admirably the position and prospects of the respective companies. Speeches at the meetings of the "C.M.S." subsidiaries, held on Thursday, will be dealt with next week.

* * * *

S.A. Lubricants: A New Flotation.

Attention is drawn to the prospectus appearing in our advertising columns of the issue of 3,000 shares at a premium by the S.A. Lubricants and Chemical Works, Ltd. The issue is to provide capital for proving a large oil shale area held by the company in the Impendhle district, Natal. It will be remembered that Mr. Cunningham Craig reported very favourably on the oil shales in this district, and they certainly merit proper testing. The issued capital of the S.A. Lubricants Co., including this issue, is only £19,000, and this combination of a small capital with a large property makes the outlook for the company very attractive indeed. The directors are all leading Durban business men, and we wish the undertaking every success.

* * * *

The Wit. Deep Meeting.

The annual meeting of the Witwatersrand Deep, Ltd., held on Wednesday last, proved itself to be a very stormy affair indeed. The greater part of the proceedings was devoted to a duel of invectives and personal abuse between the directors, aided by supporters of the present Board, on the one side, and disappointed shareholders on the other. The latter alleged that the profit announced by the company had only been secured at the expense of development and by means of the gold premium. The directors sought to defend themselves and to obtain re-election, but a poll was demanded, and eventually the meeting broke up in disorder, an adjournment until next week being agreed to. It will be recalled that the Wit. Deep Board was reconstituted under the aegis of the Shareholders' Protection Association about a year ago, but the proceedings at the annual meeting on Wednesday make it clear that some shareholders now desire protection from or against the original protective association.

* * * *

A Miner's Plucky Action.

Through the presence of mind and courage of a miner named Frenkenberg at the Hubbard shaft of the Langlaagte Block B the consequences of a skip accident which occurred there on Wednesday morning last were minimised and two lives were saved. It appears that some natives who had collected on the ladderway in the vicinity of the seventeenth station had loosened the brattice which separates the ladderway from the skipway, with the result that it fell on the track in front of the downcoming skip, carrying six white men and two natives. The skip was overturned, and the occupants were thrown out in all directions. By a miracle nobody was badly hurt, although the men lay more or less dazed about the shaft in the way of the rock skips, which ran in the eastern compartment of the shaft. One man, Frankenberg, was thrown down the shaft to No. 18 level, a distance of 200 feet. He was badly bruised, but not seriously hurt, this being due largely to the "dip" of the incline. Frenkenberg clambered out on to the station, and, realising the danger to his mates from the other skips, he immediately rushed to the bell and rang the shaft accident signal. This brought all the skips to a stop. Had he thought more of his personal injuries and less of his companions, nothing probably could have saved the two who lay in the way of the rock skips. It is understood, as stated, that none of the whites were seriously hurt, and that the natives within a couple of minutes were discovered walking down the ladderway to their work at the bottom of the shaft

"The S.A. Engineer and Electrical Review."

The May number of the *S.A. Engineer and Electrical Review* is an excellent one. The contents include short notes on Co-operation on the Rand; Charcoal-making in South Africa; S.A.R. Rolling Stock; Electricians' Examinations; Steel vs. Cast-Iron Pipes; Drying-out Electrical Machinery; British Electrical Development Association; Profit-Sharing; The Petrol Committee's Report; The Association of Certificated Mechanical and Electrical Engineers; Machinery and Engineering; Successful Opening of Karoo Great Dam; Victoria State Railways; Additional Refrigerating Plant; Metropolitan Vickers' Activities; A New Company to Exploit the East African Market; Vickers, Ltd.; Armstrong-Whitworth and Civil Engineering; Saving Waste Coal in Great Britain; Engineering and Advertising; An Iron Industry for Rhodesia. Longer articles appear on: S.A. Society of Civil Engineers: Mr. W. Ingham's presidential address—important review by new president of outstanding engineering questions in the Union; The Manufacture of Concrete Pipes by "Hume" centrifugal process—illustrated description by the managing director of the making of Hume pipes; South Africa as a Market for British Products: Impressions by Special Commission of the Federation of British Industries of South African trade possibilities; Use of Electricity to Develop S.A. Resources: Valuable paper by Mr. H. W. Clayden on the application of electricity to our industries; Industrial Development Along the Trans-Zambesi Railway: Industrial expansion that promises to attend on the new railway being built by Pauling & Co. from Beira—big orders for British manufacturers; More Capital for Francois Process: Particulars of reconstruction of this important company; The Registration of Engineers: The Case for the Electric Lamp Makers; S.A. Railway Electrification and Our Industries; The Month in the Engineering, Electrical and Allied Trades. The *Review* may be obtained from any branch of the Central News Agency.

* * * *

Col. Creswell and the Low-Grade Mines.

According to a telegraphed summary from Capetown, Col. Creswell's Bill to prohibit the closing of mines without notice provides that it shall not be lawful for the holder of a mining title to cease mining operations until after the expiration of three months' written notice given by him to the Minister of Mines, provided that, where the holder of a mining title reduces in any one calendar month the number of employees working on a mine by more than 15 per cent., such reduction shall, subject to certain provisions in the Bill, be taken as equivalent to three months' notice. During the period of notice the Bill lays down that it shall not be lawful further to diminish the number of employees working on such mine. At the expiration of the three months' notice the owner of the mining title, it is provided, shall forfeit, free of all charges to the Government, all his right, title and interest in such mine. The Government may take over all the plant free of all charges for a price to be determined between the Minister and the holder. Should the Government desire to take over the plant immediately on the expiration of three months, possession shall be given forthwith, notwithstanding the fact that the price has not been determined. The price to be paid by the Government, it is stated, shall be the value which the plant would fetch by public auction, and, failing agreement as to the price, this should be determined by arbitration. In the event of the holder of the mining title contravening the clause debarring him from diminishing the number of his employees during the period of notice, all his rights and the plant are forthwith to be given to the Government, who shall thereafter pay him half the value of the plant. Provision is made for a Board of Enquiry of two members of the Public Service, one of whom shall possess technical knowledge of mining, one member to be nominated by the holder of the title, one by the employees on the mine, and one by the local authority. This board is to enquire whether: (a) A reduction of employees has been made in pursuance of the policy of ceasing operations within three months; (b) whether it is practicable to continue working the mine either by the Government leasing it to tributors; (c) whether and what provision can be made for absorbing the men thrown out of employment; and (d) what provision can be made for absorbing them in agricultural and other pursuits.

Ants as Prospectors.

In Le Neve Foster's Text Book of Ore and Stone Mining—revered old manual in schools of mines throughout the world!—there are some most entertaining paragraphs relating to accidental discoveries of mineral deposits and also to notable discoveries which have been made in consequence of keen observation of natural characteristics of an out of the ordinary nature. One recalls, for instance, the discovery of rich silver mines on the flanks of the Andes by two travellers who, lighting a fire amongst some stones for the night found in the morning a button of silver in the ashes. There is also, too, the story of the discovery of gold deposits in Venezuela through observation of the habits of a certain bird which frequented particular belts of vegetation always associated with gold. In South Africa similar finds have resulted from a study of natural characteristics, such as the distribution of certain kinds of trees and bushes. In the Free State diamondiferous ground is often burrowed out by Meer Kats, and these little animals are in fact entitled to discoverers' rights in respect of two or three gem-bearing fissures. More recently the discovery has been made in the new diamondiferous areas of the north-western portion of the Cape Colony that ants often give indications of the presence of diamond-bearing ground. We have ourselves seen antheaps in the Postmasburg area containing a liberal distribution of mica brought up from the subsoil by ants, and in at least one instance intelligent prospecting of the area in the vicinity of these ant heaps has led to the discovery of true yellow ground with which mica is invariably associated.

* * * *

The Business Position.

The monthly trade report of the National Bank of South Africa, Ltd., has the following, inter alia:—Wholesale business continues good for the moment, but the outlook for the future is not bright, owing to difficulty in replenishing stocks and continually rising prices. Soft goods, for example, are costing fully 30 per cent. above the prices of three months ago. Conference lines have advanced freight 10s. per ton on practically all descriptions of cargo from the United Kingdom to South African ports. Local merchants are adopting a waiting policy, pending the effects of coming legislation in the Profiteering and Rents Bills. The bank exchange rate between here and London is another important factor on the trade horizon. From all quarters come complaints of the shortage of building material. Cement is difficult to obtain and corrugated iron has seen a further advance in price. Timber and imported joinery of all descriptions are scare in Johannesburg. Deals are very scarce at 2s. and 2s. 1d. per foot, floorings are 10d. to 10½d., ceilings 7d. to 7½d., but a shipment is due at East London early next month. The demand for building material is intensified by the great shortage of dwelling houses in the towns, though, on the other hand, the Rack-Renting Bill has caused many speculative builders to withdraw plans for hire-houses and tenements. Dealers' yards are still bare of second-hand material. Electrical materials are coming forward very slowly. The shortage in ceiling roses, adaptors, etc., has been slightly relieved, but there is no surplus of these particular lines. Tubing is more plentiful, but wiring is scarce. Lamps are becoming dearer and scarcer, and the general tendency is for all prices to harden. Record prices are reported in iron and steel goods, owing chiefly to the demand from the engineering shops and foundries on the resumption of work. Steel plates are in heavy demand, and the price has risen from 50s. to 100s. per ton; 1-8 and 1-16, 62s. to 65s.; 3-16 and 5-16, 60s.; 3-8 upwards, 47s. 6d. to 50s. Other prices are much the same. The price of drill steel is 7½d. per lb., but there is practically no demand from the mines. Tool steel also is in very poor demand, the price being from 1s. to 1s. 6d. per lb.; hollow, 11d. to 11½d.; shafting, 7½d. to 8d. per lb. Bolts and nuts have advanced, the total rise having been about 30 per cent. during the last five months. The latest quotation for 100 ton lots of the very best mild steel is 35 per ton at nearest station to factory.

TOPICS OF THE WEEK.

MINING AND RAILWAY QUESTIONS IN THE UNION PARLIAMENT.

Pending the forthcoming debate on the Low Grade Mines Report and the finding of the Simmer Deep inquiry now in progress, diamond and railway questions seem to have taken up most of the time in the Assembly during the week. To discuss the new Native Bill hardly comes within our province. Answering a whole volley of questions regarding diamonds, the Minister of Mines showed that according to the Government's information the fall in prices on the river diggings was not caused by any organised movement of the controllers of the diamond industry. Buyers were not buying very freely, and in cases where the diggers must realise their stones, they were bought at rates varying from 30 per cent. to 35 per cent. below ruling rates. He explained that the fall in price, which was considered only temporary, was due to the fact that buyers were to a certain extent overstocked, to the depressing effect of the prohibition against the importation of diamonds into France, and to the unsatisfactory exchange rate. As to helping the diggers, Mr. Malan mentioned that the Government were considering the publication of regular bulletins giving the rise or fall in prices in the London market as an indication of the market prices. Information, added Mr. Malan, had been received in regard to the reported discovery of a diamond pipe in Brazil —mentioned in a recent issue of this paper—but until more was known it was not possible to forecast the effect of the discovery on the diamond industry of the Union. The Prime Minister said that the Government was in constant touch with the unemployment question in all parts of the country, and especially at the present moment on the Rand. In the case of many persons unemployed in the mining industry it was probable that this phase would be only temporary and that a considerable process of re-absorption would eventuate. Until the position assumed more definite shape, and the extent of possible absorption was known, it was impossible to make any further pronouncement. The introduction of the Railway Budget by Sir Thomas Watt on Monday provided several features of interest. The Minister went to some pains to demonstrate that the railway rates were not responsible for the large increase in the cost of living on the Rand. He laid stress on the fact that the piling up in the past of a deficit of a million and a half had rendered increased rates a necessity, while last year the excess expenditure over the estimates was £2,609,000, mainly due to higher wages and the cost of materials. The actual loss in the work of the railways last year was £617,000. He asked Parliament to vote for railways £23,130,700; harbours, £1,544,900; steamships, £213,300; or a total of £24,888,900, being £4,298,000 more than the previous vote. To meet this expenditure, Sir Thomas Watt expected a revenue of £23,489,300 for railways, £1,553,100 for harbours, and £259,400 for steamships, a total of £25,301,800. The estimated weekly revenue of £430,030 would, if realised, constitute a record " compared," said Sir Thomas Watt, " with the year prior to Union, when the weekly revenue was £200,000. The figures were very striking and spoke volumes for the development of the country." Reference was made to the handicaps under which the railways suffered owing to the restricted facilities for repairing rolling stock, and obtaining materials. He regretted that in consequence it would be impossible to submit a programme for new railway construction to Parliament this session. We welcome the Minister's announcement of the coming electrification of the line from Capetown to Simonstown and Durban to Maritzburg. These, we hope, will prove to be the forerunners of other and larger applications of electricity to our railways. On the all-important subject of coal, the Minister of Railways vouchsafed the information that during the twelve months ended 31st March, 1920, the number of ships delayed waiting for coal at each of the Union ports was as follows: Capetown, 1; Port Elizabeth, none; East London, none; Durban, 122. The delay at Capetown was due to shortage of coal. As 870 ships coaled at Durban during the year only 14 per cent. experienced any delay. Only two vessels were delayed during the period March 1 to July 31. At July 31 there were 30,000 tons of coal at the port and no ships waiting. Three hundred and six vessels arrived for coal in August, September and October, during which months 61 per cent. of the delays took place. The demands then were exceptionally heavy, and at certain times were beyond the normal capacity of the collieries and the Administration. Delays, though regrettable, are not always avoidable, and South Africa is not the only country in which they have been taking place. Shipping is being delayed to-day at all ports throughout the world as a result of congestion and War-created difficulties. These are some of the outstanding facts of interest and importance regarding mining and railway affairs to be gleaned from recent official statements in the House of Assembly.

De Beers Consolidated Mines, Limited.

An extraordinary General Meeting of shareholders of De Beers will be held at the head office of the Company, in Kimberley, on Friday, 25th June, 1920, at 11 a.m., in terms of Articles 152 and 153 of the Articles of Association of the Company, when the subjoined resolution for the purpose of amending the Articles of Association of the Company, will be submitted, viz.: " That the Articles of Association of the Company be altered by the addition of a subsection to be called (j) to Article 84, to read as follows: ' As additional remuneration to that provided for in subsection (i) of Article 84, as from 1st July, 1919, the Directors shall receive in each year by way of further remuneration a sum equal to five per centum of the dividends on Deferred Shares declared and paid in respect of each year in excess of a dividend or dividends on Deferred Shares equal to the total sum of the paid up capital of the said Deferred Shares. The said additional remuneration shall be divided among the Directors in such manner as they or a majority of them may decide.' " The holders of Deferred Share Warrants to Bearer will not be entitled to vote, either in person or by proxy, in respect of such warrants unless they shall have deposited such Warrants at the head office of the Company in Kimberley, at least twenty-four hours before the meeting, or at the transfer office in London, on or before the 26th May, 1920.

* * * *

Dust in Mines.

Mr. W. Gemmill, actuary and labour adviser of the Transvaal Chamber of Mines, writes to our morning contemporary as follows: In your issue of Saturday there appears an article headed " Heavy Toll of Miners' Phthisis." This refers to the appointment of three additional dust inspectors for the Rand, and to the heavy cost of miners' phthisis to the industry, and without explanation may give the impression that the dust conditions on the mines have recently become worse. The reverse is the case. It is an undoubted fact, of which there is ample evidence, that these conditions have steadily and greatly improved. The figures of the Chamber's dust sampling department which is engaged in continuous dust sampling of the mines show that the average dust contents of mine air during the recent years is as follows: 1915, 4·9 milligrams per cubic metre of air; 1916, 3·9; 1917, 3·8; 1918, 2·9; 1919, 2·1. The improvement was reflected in a considerable reduction in the total cost of miners' phthisis compensation during the years 1915 to 1918. In 1919, however, Parliament passed an Act establishing new scales of compensation unprecedently high as compared with compensation for industrial diseases in other parts of the world, and also introducing a new class of beneficiary, the " ante-primary " class. To this new legislation is solely due the fact that the cost of miners' phthisis compensation for the past twelve months was at the rate of £1,250,000 per annum as compared with about £400,000 per annum in the previous twelve months, an increase which is responsible to a marked degree for the present crisis in the position of the low-grade mines.

SIEMENS BROTHERS
& CO., LIMITED

RUBBER CABLES.
PAPER CABLES. FLEXIBLES.

"STANNOS" WIRES.
ENAMELLED WIRES.

TELEGRAPH CABLES.
TELEPHONE CABLES.

JOINT BOXES.
COMPOUNDS. TAPES.

CABLE APPLIANCES.

EBONITE.

TELEGRAPHS.
TELEPHONES.

RAILWAY, MINE, SHIP
AND
POWER STATION
SIGNALLING.

FIRE ALARMS.

TUBULAR POLES.
LATTICE POLES.

OVERHEAD LINE MATERIAL.

FLUID & DRY CELLS.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18
Established 1858.
OVER 4,000 EMPLOYEES.
Telephone: City 6400 (7 lines)
Telegrams: "Siemens, Woolwich"

HOME BRANCHES:
BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:
CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.— Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:
A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.
Telephone 1202.
Telegrams: "SIEMENS."

IDLE MINES AND THEIR PLANTS.

Possibility of Employing Equipment for New Far East Rand Ventures Discussed—Position of the Modder East—Question of Plants for West Springs, New States and Daggafontein—A Thousand Stamps Involved.

Decision to suspend work at some of the low-grade ventures of the Main Reef series makes it interesting to speculate on the fate of the mills and other equipments of these ventures which have ceased to be productive and raises the question whether such installations could be profitably employed by mines which have better prospects but are at present unequipped and are confronted with having to incur enormous expenditure in connection with the purchase of new plant.

The Modder East and the Apex Plant.

At the present moment the only new developing venture which has sufficient ore blocked out to merit erection of a large crushing plant is the Modderfontein East, and as is generally known this company, finding that preliminary estimates for the erection of a new plant of 40,000 tons per month capacity disclosed an excessive cost, has resorted to the temporary expedient of leasing the Apex mill. Crushing is now proceeding at the Apex and it is anticipated that when more ore from stoping is available and the plant is working up to its full capacity of 27,000 tons per month the results secured will be satisfactory.

Cost of New Equipment.

At the same time it is obvious that a plant of 27,000 tons per month capacity is insufficient for a mine of the size of the Modder East if the best results are to be secured. About ten months ago the board considered that the erection of a battery and treatment plants capable of dealing with nearly half a million tons per annum was merited, and having regard to the immense claim area controlled and the satisfactory manner in which the mine has been opening up, one is justified in assuming that this equipment was regarded by the board as a preliminary to the eventual erection of a substantially larger milling installation. Whether the recently reported slump in prices in America and the gradual downward trend of the selling values of numerous commodities in England heralds the beginnings of a period of more production at a lower cost and ability to turn out an efficient and large milling plant for a Rand gold mine at a reasonable figure remains to be seen. We understand that more recent quotations for an installation such as the Modderfontein East requires have disclosed a cost even in excess of the estimates of a few months ago, but events of first-rate importance to the cost of things have evidently been happening recently overseas, and it may be that the day is not far distant when a mill of half a million tons per annum capacity will be obtainable at figures more closely approximating to pre-War expenses than have recently prevailed. As already stated, the Modderfontein East alone of the Far East Rand developing propositions is at present in a position of development which warrants the erection of a productive plant.

West Springs, New States and Daggafontein.

But West Springs, Daggafontein and New State Areas (at which latter proposition shaft sinking is progressing with remarkable rapidity) will in the not far distant future be requiring batteries, and the question of whether costs of overseas material and labour will permit of these companies obtaining the equipments required by them at prices which will not unduly tax their capital resources is naturally one of foremost importance. Whether the costs of equipment come down to reasonable figures or not, the fact that mines possessing milling equipments comprising nearly 1,000 stamps (the majority of them being of modern design) and 25 to 30 tube mills are either closing down or are in imminent danger of being closed down is a matter of very material importance to the Rand from every point of view. One aspect of the unfortunate combination of circumstances which has resulted in so many of the poor mines working at a loss is that a large number of efficient milling and cyaniding plants which have cost many hundreds of thousands of pounds are likely to be idle and to remain idle. The possibility of employing these equipments in the crushing of ore from the new developing mines of the Far East Rand either by dismantling and re-erection of them on the new mines or at some spot central to the Far East Rand as a whole or otherwise utilising these plants to crush and treat Far East Rand ore brought to them by some economical and efficient method of long distance transportation of ore is one of the most interesting problems of the industry to-day. And we fancy that a good deal more will be heard of this subject in the near future.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:

KELLY, BURNIE & CO.

Box 5260. The "KELCO" People. Phone 4333.

Corner Polly and Albert Streets, Johannesburg.

IRON

AND

STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.

CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

HADFIELDS Ltd.

Workmen employed
during the war,
over 15,000.

East Hecla and Hecla Works, Sheffield, England.

Works area over
200 acres.

"HECLA" DISC CRUSHER.

(SYMON'S PATENT).

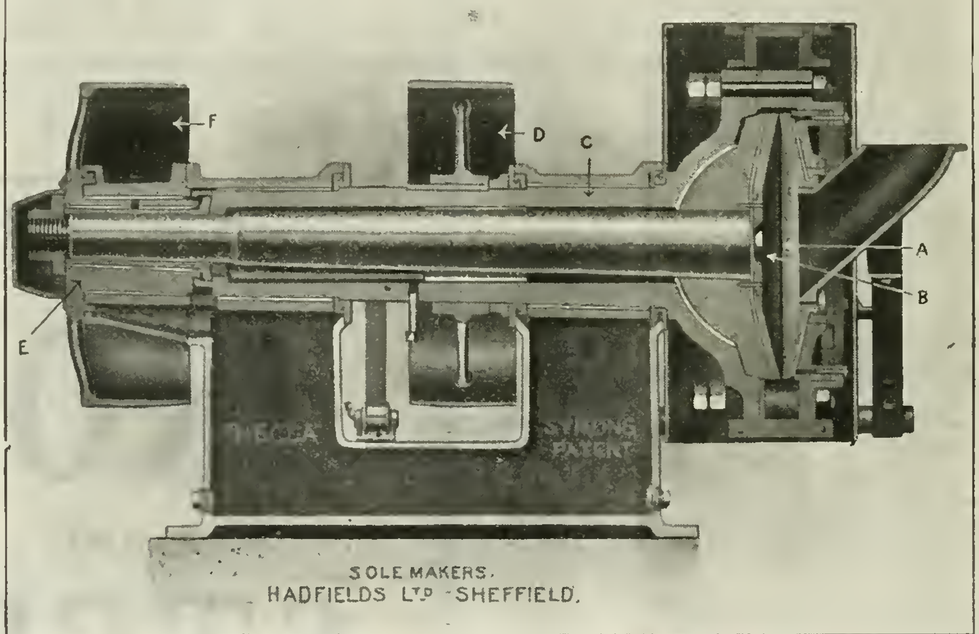
THE CRUSHER that excels in output, in economy of power, in uniformity of product, and in low cost of maintenance. WRITE FOR CATALOGUE.

THE ONLY CRUSHER

that reduces ROCK and ORE, WET or DRY, successfully to a smaller product.

MAKERS OF ALL KINDS OF

STONE BREAKING AND ORE CRUSHING PLANTS.



SOLE MAKERS OF

HADFIELDS' PATENT

ERA
TRADE MARK

MANGANESE STEEL.

The Supreme Material
For the Wearing Parts of Stone
Breaking & Ore Crushing Machinery.

Head Office for South Africa:

46 & 47, CULLINAN BUILDINGS,
JOHANNESBURG.

'Phone 5000. P.O. Box 1000.

Tel. Add.: "HECLA."

Stores: DENVER, TRANSVAAL.

(Adjoining Denver Station)

Bulawayo Agents:
WHITMORE & JACKSON.
17 & 18, Agency Chambers.

Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

Natal Agents:
THOS. BARLOW & SONS (S.A.) LTD.,
Smith Street, Durban.

THE RAND'S RECENT OUTPUT AND PROFIT FIGURES.

Incidence of the Premium—Effect of Increased Costs and Gold Realization Charges on Profits—A Study in a Sovereign's Worth—Some Informative Calculations.

There appears to be a fairly widespread belief in certain circles that the closing down of or curtailment of work at several of the lower-grade mines of the Witwatersrand is simply part of a huge conspiracy which in some subtle and unexplained manner is going to enable the mine owners to sweep further millions into their coffers. Those who have given recent mining returns a merely cursory consideration point to the so-called "premium" on gold and declare that although the price of the precious metal has fallen recently it is still selling at a figure substantially in advance of the price at which it stood before the Rand began to dispose of its output in an open market. It will be as well, therefore, to elucidate the actual position obtaining on the Rand to-day by means of indisputable figures, and to make it clear that increases in working costs mainly consequent on higher wages and the heavy gold realisation charges have more than nullified the incidence of the premium, which has declined substantially during the past two or three months. To employ the admirable phraseology employed by the late Mr. Hennen Jennings, we propose to show that the cost of producing "a sovereign's worth" of gold is at present greater than in the days when the Rand's production was sold at the old standard rate. To those who have been recently imbued with the idea that the Witwatersrand has entered on a new and eternal epoch of prosperity ushered in by the "gold premium," this may seem an unduly pessimistic assertion, but it is in sober fact the truth.

Sir Evelyn's Warning.

At the last Chamber of Mines' annual meeting, Sir Evelyn Wallers made some highly important assertions in regard to the incidence of the price of gold on the industry. Having expressed the hope that the cost of living and commodities generally would fall faster than the premium on gold he asserted that unfortunately the probabilities are that the reverse would be the case, and subsequent events have borne out Sir Evelyn's prediction. During the months of March and April the price of gold dropped by more than a sovereign per ounce. But this decline has not been accompanied by any apparent reduction in the cost of living; on the contrary, the rates of wages and the prices of commodities seem to advance. The sum total of all these tendencies towards higher expenditure of production is to be clearly seen in the output and cost statistics issued by the Witwatersrand Chamber of Mines.

Revenue and Profits.

Detailed figures in respect of the April operations are not at the moment available, but the following tables, which set forth the salient features of output, cost and profit, etc., for the first three months of the year, throw an informative light on the present economic situation of the Reef:

	January.	February.	March.
Tons milled	2,038,092	1,869,180	2,188,104
Declared total, fine ozs.	653,842	607,918	689,645
Dwts. per ton	6·375	6·460	6·264
Value per oz.	107/6	110/0	105/0
Revenue	£3,495,460	£3,281,960	£3,467,618
Revenue per ton	34/4	35/1	31/8
Total working costs ...	£2,458,591	£2,637,389	£2,751,008
Working costs per ton...	24/2	28/3	25/2
Realisation charges per fine oz.	1/0	5/0	6/3
Profit	£1,036,859	£644,571	£716,610
Profit per ton	10/2	6/10	6/6

The following table shows how exchange rates and a lesser price for gold have diminished the revenue of the mines during the past few months:

	Price of gold per fine oz.	Realisation charges per fine oz.	Net value per fine oz.
January	£5 7 6	1/0	£5 6 6
February	5 10 0	5 0	5 5 0
March	5 5 0	6 3	4 18 9
April	5 2 6	7 6	4 15 0

The Cost of a Sovereign's Worth of Gold.

In January to earn £3,495,450 of gold it cost the mines £2,458,591, or 14·06s. per "sovereign's worth." In February gold worth £3,281,960 was won at a cost of £2,637,389, or 16·06s. per sovereign, and the March operations resulted in a total revenue of £3,467,618 at a cost of £2,751,008—that is to say, each sovereign's worth produced cost 16·44s. We may express these figures in another way and show that in January, February and March the proportionate percentage ratios of the cost of production to the total revenue were as follow:

	Total output.	Percentage of cost.	Percentage of profit.
January	100	70·3	29·7
February	100	80·3	19·7
March	100	82·2	17·8

In October, 1919, when the yield was based on a fine ounce value of £4·24773 the Rand crushed 2,108,698 tons for a revenue of 705,313 fine ozs., worth £2,995,979, or 28s. 3d. per ton. The total working costs were £2,371,610, or 22s. 6d. per ton, and the working profit was £612,841, or 5s. 10d. per ton. Working costs were then 22s. 6d. per ton, or in other words the percentage ratio of expenditure to revenue was 79·4, which means that the production of a sovereign's worth of gold in terms of these non-premium statistics was 15s. 10d., or 7d. less than the cost of an equivalent measure during March when gold was quoted at a premium of about 25 per cent.

We publish these figures without comment, but would remark that some little study of them will be worth while by those students of the Rand's statistics who have been unable to see the whys and wherefores of a declining stock market and decisions to suspend operations at numerous mines.

AGENCY—First-class Sheffield House are open to appoint firm or person with good connection amongst the Mines for the sale of Mining Steel.
Write in confidence, stating terms, turnover anticipated and references to Box 844, T. B Browne's Advertising Offices, 163, Queen Victoria Street, London, E.C.4 England.

MINES DEPT. EXAMS.—Recent Results.

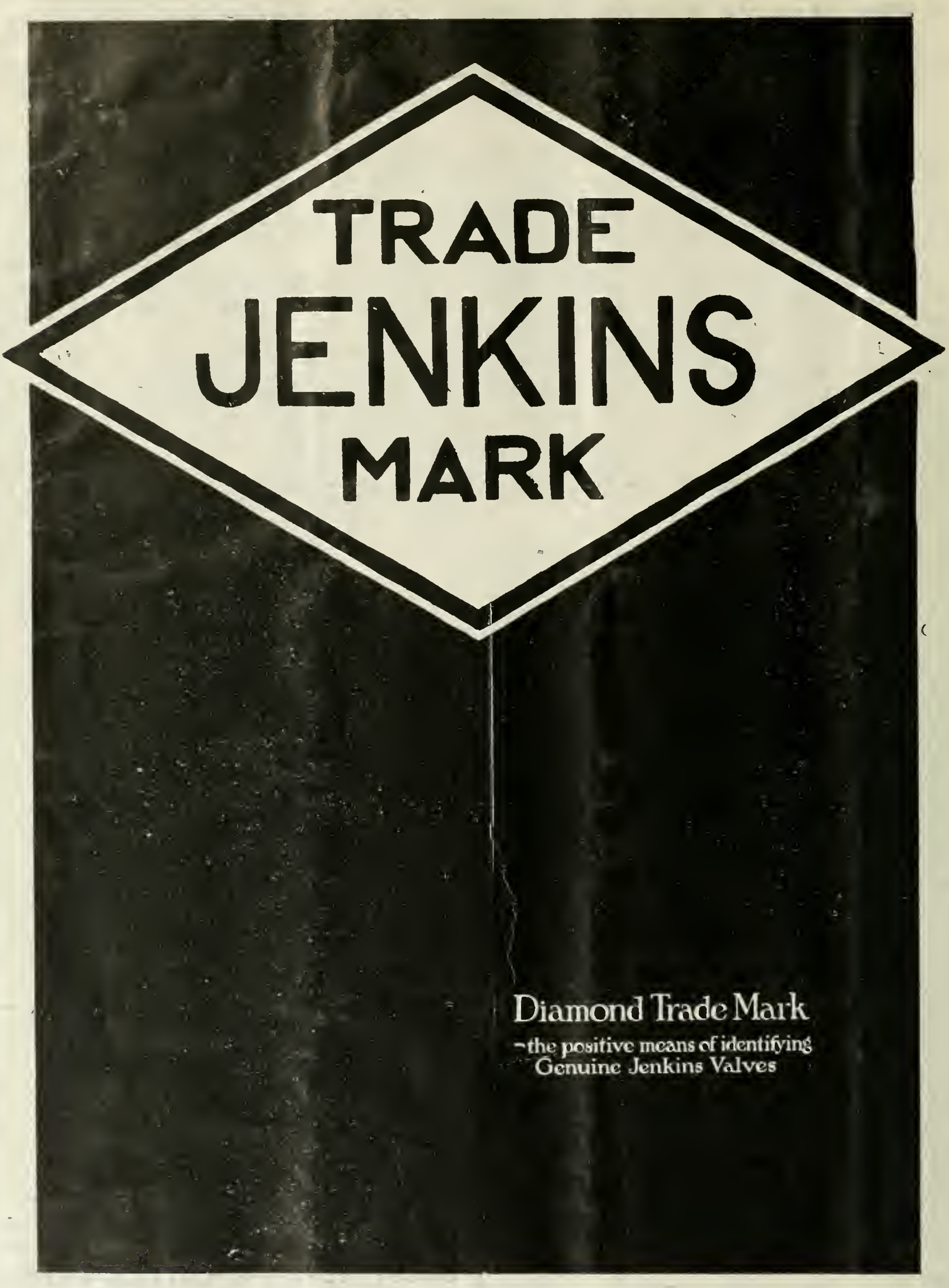
Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 21 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January-April, 1920, we secured 14 out of 22 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.



Diamond Trade Mark
—the positive means of identifying
Genuine Jenkins Valves

OBTAINABLE ONLY FROM

C. WHARTON HOOD & CO. (S.A.), Ltd.

P.O. Box 6096. **'Phone 973.**
Offices: SOUTHERN LIFE BUILDINGS,
HARRISON STREET, JOHANNESBURG.

THE QUESTION OF NATIVE TRADING ON MINES.

Appeal in Modder Deep Case—History of the Matter—Correspondence Between Parties.

In the recent test case—I. Feinstein v. Modderfontein Deep Levels—the mine was, it will be remembered, interdicted from trading with the natives. An appeal has been noted against that decision. An advertisement appeared in the local Press during the week, which indicated that the parties against the appeal, that is to say, the Reef traders, do not intend to let matters slide; for they give notice that: "All Reef storekeepers, where trading with natives is still being continued by any gold mining company on any mines, are requested to notify the solicitor (for the Chamber of Reef Trade) of same within 24 hours." It is contended that the interdict does not prohibit or prejudice sales on mines other than on the Modder Deep Levels. Moreover, even if a mine be forbidden to sell in its compound, there are other places outside the compound where such sales can be conducted without contravening any interdict. Furthermore, the concern which does the trading is the Native Recruiting Corporation, which, it is said, is not a mining company. The contention is that the mines themselves do not sell. The Native Recruiting Corporation submits that it has never been interdicted from selling its stocks at cost to the natives. In a word, the Corporation's present attitude is that before an interdict on sales can become binding on it, steps of a more definite and more comprehensive character must be undertaken by the opponents of mine compound trading. The matter, as stated, has gone to appeal. In the meantime, it is understood that the Recruiting Corporation intends to go on selling, because it does not consider that it has yet been interdicted under the judgment.

HISTORY OF THE MATTER.

The history of the matter is given in the following correspondence between the Johannesburg Chamber of Commerce and the Transvaal Chamber of Mines on the subject of the supply by the mines of blankets and necessary articles of clothing to native mine employees.

On March 23 the Secretary of the Johannesburg Chamber of Commerce wrote to the Secretary and Legal Adviser of the Transvaal Chamber of Mines as follows:—I am instructed to acknowledge with thanks receipt of your letter of the 20th instant, together with a copy of the minutes of a meeting held between representatives of your Chamber and this Chamber on the 16th instant in regard to trading with natives on the mines. On that occasion it was stated and understood that:—1. The Native Recruiting Corporation had purchased clothing and soft goods to the value of £220,000 for supply to natives in the mine compounds, and that these goods would be sold to the natives at cost price or less. 2. Overhead and distributing charges would not be taken into consideration. 3. The future policy of the Chamber of Mines in this regard had not been definitely laid down. I am directed to inform you that this Chamber has considered this matter further, and deprecates in the strongest possible terms the sale to natives or other employees of goods by the mines. At an interview recently held with the Prime Minister he distinctly stated that it was the cardinal feature of all the Governments of the Transvaal that trading by mines should not be countenanced. It will, therefore, be seen that the Government, and certainly public opinion, are opposed to such trading, and for this reason the Chamber hopes that the whole position will be reviewed and reconsidered by your Chamber in this light. With regard to the purchases which have already been made by the Native Recruiting Corporation, it would appear that your Chamber, having purchased them, is of opinion that it is necessary to sell these goods to the natives at cost price or less. In this connection I am directed to state that this Chamber is of opinion that there is no necessity even for such sale of these particular goods, as they would be disposed of by the Native Recruiting Corporation in a suitable manner, and they should fetch their value in the open market by any method of sale which it may be considered desirable to adopt. This Chamber, therefore, hopes that you will be good enough to consider this aspect of the question also.

On April 22nd the Secretary of the Chamber of Mines replied to the Secretary, Johannesburg Chamber of Commerce, as follows:—I have to acknowledge your letter of 23rd March setting forth a protest on behalf of your Chamber against the action taken by the Mining Industry in arranging for the supply, at cost price, of blankets and necessary articles of clothing to the native mine employees. The position of the Industry in this matter was fully explained to your representatives at the meeting held on March 16th, 1920; but, for purposes of record, it is considered advisable again to set out that position, as follows:—For years the native mine employees have been dissatisfied with the system of trading under which they purchase clothing and luxuries; and about two years ago this dissatisfaction came to a head in a boycott of many Reef stores. Two Government investigations into the causes of the boycott were undertaken: First, an investigation by a Special Commissioner (Mr. A. H. Stanford), and, secondly, an investigation by the Cost of Living Commission. Your Chamber will recollect that Mr. Stanford in his report stated:—"The evidence of both natives and Europeans discloses that the methods of trade at the Reef stores are pernicious. It is admitted by the storekeepers that the trade is run on lines totally different from trade in any other part of the country. Except for a few special lines, there are no fixed prices; the storekeeper makes as big or as little profit as the circumstances will permit. For certain varieties of goods the trader as a rule asks a much higher price than he is prepared to take: if he gets it well and good; if not, he comes down to the lowest margin he can sell at rather than lose a customer. Naturally, practices such as these must occasionally lead to exorbitant profits being made, and while I would not like to say that profiteering has been general, I have no doubt that individual instances have been frequent, notwithstanding the contention by some of the traders that the keenness of competition is so great, and the values so well known to the natives, as to render this impossible." The Cost of Living Commission in its Report stated that: "The Commission is in general agreement with Mr. Stanford's account of the business methods adopted by mine storekeepers and of the seriousness of the difficulties which are caused by the natives' dislike of the section of this community by whom these stores are practically monopolised." In the opinion of this Chamber it is no exaggeration to affirm that the treatment accorded to natives by many Reef traders is one of the important causes of unrest among the natives, which recently culminated in a most serious strike. The Mining Industry, realising its responsibility to the 19,000 natives employed on the mines—who are unable to establish co-operative stores for themselves—and also to the white employees and the white population of the Witwatersrand generally, whose security and prosperity are seriously threatened by the unrest amongst the natives, decided to provide facilities under which natives may obtain at cost price those necessaries which they do not obtain satisfactorily under the present system. As regards the view set out in your letter that trading by mines should not be countenanced, I would point out that, according to the judgment in the recent case, Pearlman *versus* East Rand Proprietary Mines, Limited, the steps now being taken by the Industry do not constitute trading. It is also noted that your Chamber is under the impression that the Government and public opinion are opposed to the Industry's action. In this connection I would refer you to the report of the Government's Departmental Committee on Native Trading on Mines published in October, 1919, which definitely recommends the adoption of the principle of trading by mining companies under certain conditions. That Committee stated:—"The Committee can see no reason why mines should not cater for the needs of their native employees, or that their doing so should necessarily involve the adoption of the closed-compound system." Finally, I would mention that you are incorrect in thinking that overhead and distribution charges are entirely ignored in fixing the prices charged to natives. A copy of this correspondence is being sent to the Press.

ANSWERS TO CORRESPONDENTS.

All enquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to enquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"R. H. L."—A full report of the special meeting of the company duly appeared in our columns, making the matter perfectly clear.

"W. J."—(1) Yes. (2) Your estimate is correct.

Municipal Notice—Bloemfontein.

TENDERS FOR TRUCKS AND RAILS.

Tenders are hereby invited, to be delivered to the undersigned not later than the 1st JUNE, 1920, for the supply of the following:—

30 pairs of 2in. gauge rails, with sleepers and fishplates.
2 Right-hand crossings.
2 Left-hand crossings.
6 Side-tipping trucks, about 15 cubic feet capacity.

Tenders to be marked on the outside of the envelope "Tender for Trucks and Rails"

The Council will not necessarily accept the lowest or any tender

By Order,
J. P. LOGAN,
Town Clerk and Treasurer.

Town Office, Bloemfontein,
17th May, 1920.

THE

STRAITS TRADING COMPANY

LIMITED.

HEAD OFFICE **Singapore**

STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—

THE STANDARD BANK OF SOUTH AFRICA, LIMITED,

COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF

TIN ORE CONCENTRATES OF ALL GRADES

FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—

THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

HEAD, WRIGHTSON & CO. (South Africa), LTD.

P.O. Box 1034. JOHANNESBURG. Telephone 3524.

Head Office and Works at Thornaby-on-Tees, England.

MANUFACTURERS OF :—

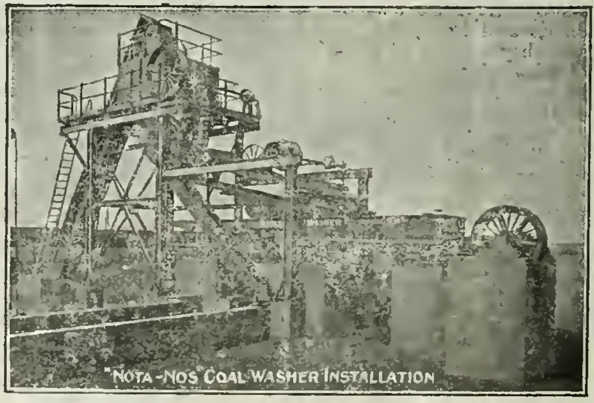
COLLIERY PLANT, BLAST FURNACE PLANT,
STRUCTURAL STEELWORK, Etc., Etc.

For Coal Washing and the Clean Separation of Coke and Clinker, Pan Ash, Limestone, etc., etc., our

Patent **"NOTA NOS" WASHER**

is superior to any other.

Send for descriptive booklet or call upon us at
47-48, STANDARD BANK CHAMBERS,
COMMISSIONER STREET, JOHANNESBURG.



THE YEAR WITH THE VEREENIGING ESTATES.

Annual Review by the Chairman of the Position and Prospects.

At the twenty-first ordinary general meeting of shareholders, held in Lewis and Marks Building, Johannesburg, on the 15th May, 1920, Mr. Isaac Lewis presided, and there were also present or represented by proxy: Messrs. Barnet Lewis, Gilbert Roy Lewis, Henry D. Lewis, Alfred Hird, George F. Ayling, W. H. Bond, Julius Weil, the Estate late Samuel Marks, Lewis & Marks, Limited, George Falcke, R. W. Townsend, C. B. Kingston, Louis Marks, The African and European Investment Company, Limited, L. First, M. D. Harrison and the Acting Secretary. In all, 505,890 shares were represented out of an issued capital of 974,107 shares. The Chairman declared the meeting duly constituted, and the Acting Secretary read the notice convening the meeting. The minutes of the twentieth ordinary general meeting of shareholders, held on the 17th May, 1919, and of the special general meeting of shareholders, held on the 29th November, 1919, were taken as read, confirmed and signed. The Acting Secretary read the Auditors' certificate.

The Chairman, in moving that the Directors' Report and Accounts for the year ended December 31, 1919, be adopted, said: Before proceeding with the ordinary business of the meeting it is my painful duty to refer, on behalf of myself and my co-directors, to the death of Mr. Samuel Marks which took place last February. Mr. Marks had been actively associated with your Company since its inception and no one took a greater interest in its affairs than he. Work was to him as second nature. It may with all truth be said of him that he was a pioneer of South African Industries, and his death is not only a great loss to your Company, but also to South Africa generally. The report of the Directors and audited statements of account for the year ended 31st December, 1919, are before you and I propose they be taken as read. As you are aware the share capital of your Company was increased in November last to £1,000,000 by the creation of 269,420 new shares of £1 each, of which 243,527 shares were offered for subscription by the Shareholders pro rata to their holding in the existing capital of the Company at that date. The shares were offered at a premium of 5s. and the issue was over-subscribed. You will observe from the balance sheet and the report of the Directors that £50,000 debentures were redeemed last year. Since the end of the year a further £50,000 has been paid off, and within a few months, as the calls on the new shares fall due, the whole debenture debt will be extinguished. You will see from the Accounts that the gross profit for the year amounted to £46,744 13s. 11d., as compared with £39,414 6s. 8d. for the year 1918. This increased profit of £7,330 7s. 3d for the year under review was due principally to the increased profit on farming operations, which for the year 1919 amounted to £21,352 0s. 2d., as compared with £11,934 12s. 4d. for the previous year. On the 3rd February last your Directors declared a dividend at the rate of 5 per cent. less tax on all shares fully paid up, and on all shares partly paid up on the amount paid up to the 31st December, 1919, to all Shareholders registered at 31st December, 1919. The payment of this dividend appropriates £36,635 4s. 3d. of the amount standing to the credit of profit and loss account, leaving the sum of £11,511 4s. 9d. carried forward to next balance sheet. You will be asked to confirm the Directors' action in the matter.

FARMING OPERATIONS.

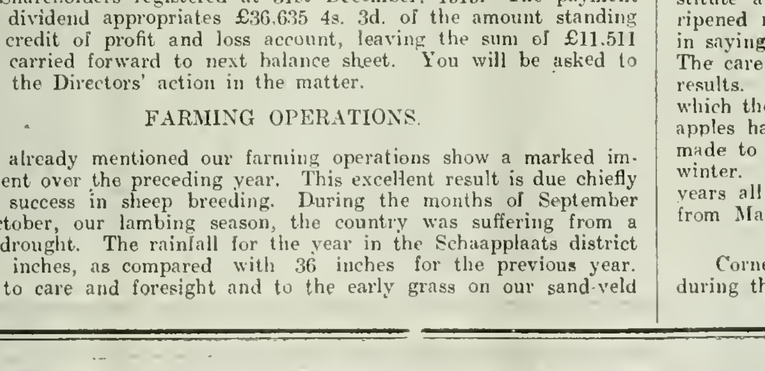
As already mentioned our farming operations show a marked improvement over the preceding year. This excellent result is due chiefly to our success in sheep breeding. During the months of September and October, our lambing season, the country was suffering from a severe drought. The rainfall for the year in the Schaapplaats district was 20 inches, as compared with 36 inches for the previous year. Owing to care and foresight and to the early grass on our sand-veld farms, this Company did not lose a single sheep from poverty. Unfortunately, the same could not be said of scarcely a single other farmer, the sheep on many farms dying in hundreds. The sheep were shorn in January and the wool clip was the best this Company has ever had Over 40 tons of high-class wool was obtained. The flocks showed an increase of over one pound weight of wool per head, as compared with our previous best season. The quality also showed a considerable improvement. Although by the time our wool was put up for auction at Durban a general fall had taken place in prices, our clip sold at a record figure All the sheep are in excellent condition, and, given a fair winter, we should have a first-class clip of wool and a substantial increase in lambs next season. Acting on the advice of Mr. Hosford, the flockmaster, your Directors have placed an order in Australia for 150 stud Wanganella ewes and 4 stud Wanganella rams, to form the nucleus of a stud sheep flock. We have at Schaapplaats everything necessary for the breeding of high-class stud sheep. Another extremely encouraging department of your Company's farming operations is its cattle ranching. The increases this last year again constituted a record. Several pedigree Hereford and Friesland bulls were purchased, also a number of pedigree Hereford heifers. During the year 14,000 trees were planted on your various farms to provide shelter for the stock. Last season's mealie crop did not come up to expectations due to abnormal weather conditions. Your Directors have in hand an irrigation scheme on your farm Leeuwkuil. This farm is admirably situated on the banks of the Vaal River and only two miles from Vereeniging Railway Station. The soil is good and an unlimited supply of water can be pumped from the Vaal River into the existing dam and then gravitated on the lands. In this way over 700 acres can be sown with lucerne and other crops. This investment should be a most profitable one. Although the breeding of horses at Schaapplaats has been successful in so far that a good stamp of animal has been produced, the results, from a financial point of view, have been disappointing, and your Directors have therefore decided gradually to close down this branch of its operations.

MACCAUVLEI FORESTS AND ORCHARDS.

In the balance sheet it will be observed that the amount standing to the debit of the Maccauvlei tree plantations is £57,624 19s. 3d. This represents the actual cost of planting and maintaining the four-and-a-quarter million trees of which the forests consist. The plantations were started nearly 26 years ago and as you were informed at the last annual meeting the time has now arrived for cutting the timber on a commercial scale. The electrically driven sawmill was started in March last and is running satisfactorily. The trees being felled and cut consist chiefly of pinus insignis and pinus pinaster. This timber has been used for some years for various buildings. The cut timber finds a ready market at good prices. The forest is in a flourishing condition. The apple crop this season will again constitute a record both as regards quantity and quality. The fruit ripened rather later this year and is still being sold, but I am safe in saying that our last year's gross figure of £5,054 will be exceeded The care and attention given to the orchards is fully justified by the results. Our aim is to produce only a first-class quality of fruit for which there is always a good market. The demand for our Maccauvlei apples have always far exceeded the supply. Preparations have been made to extend the orchards by planting 1,500 more apple trees this winter. This will bring the total of our trees up to 9,500. In future years all the fruit boxes we require will be cut at our own sawmill from Maccauvlei timber.

COLLIERIES.

Cornelia Colliery produced a record output of 595,580 salse tons during the year and made a profit of £35,859 2s. 10d. I think share



Phone 3674. Box 3162.

OSBORN'S

"TITAN" Manganese Castings,

For

Rotary and Jaw Crushers and Mortar Box Liners, etc., and for all parts subjected to severe abrasion.

Samuel Osborn (South Africa), Ltd.,

Sheffield & Johannesburg.

holders will agree this is a very satisfactory result considering the difficulties under which mining is now being carried on, and reflects credit on the management concerned. The all-round improvement in the capacity of the Colliery is best shown by the series of outputs produced during recent years:—

	Sales tons.
1912	296,706
1913	338,321
1914	445,496
1915	508,428
1916	538,363
1917	592,413
1918	581,296
1919	595,580

The output for the four months of the current year has totalled 212,073 sales tons, and, although times are unsettled and there are recurring difficulties with both European and native labour, we confidently anticipate another record output for the year 1920. Notwithstanding the record output, the working costs for the year were nearly five per cent. higher than for the preceding year due to continuously advancing European wages and bonuses, coupled with reduced hours of work, and the high price of stores, although considerable economies had been effected underground by the increased use of coal-cutters, reduced cost of pumping, improved haulages and shorter haulage-roads, and I am afraid that the limit of these higher working costs has not yet been reached. The technical details of the Colliery have been fully dealt with in the General Manager's annual report, from which you will note that the quality of the coal in the deeper areas of the pit has improved, whilst the quality in the shallow areas has been maintained. As time goes on more and more of the output must of necessity be mined from the deeper areas, which, on present indications, show the improved values. A gratifying feature of the year was the success that had resulted from the damming of the large outbursts of water underground described to you a year ago, and which had diminished the volume of water to be dealt with from 3,000,000 to 1,500,000 gallons per day. The complete success of these large experiments in confining the underground outbursts of water, and the fact that no other feeders have been encountered since then that were not easily repressed, has encouraged further experiments with the hope that the remaining 1,500,000 gallons per day may be finally disposed of underground. Needless to say, this large reduction in the volume of water to be dealt with underground appreciably assisted the working-costs for the year, and has given ample reserve of steam and electric-power and pumping capacity for any probable requirements in the future. The new district opened out on the eastern side of the S.A.R. main line proves that area of the Maccauvlei coalfield to be a very valuable asset; the coal is thick and the calorific value higher than in any other portion of the pit. To provide easier and cheaper haulage conditions and to ensure an output of 1,000 to 1,500 tons per day from this new district whenever required, a new main road has been driven from the winding shaft across the old workings, 3,250 feet long, to give direct communication on a level gradient to that area of the Maccauvlei coalfied for many years to come. The driving of this main road through the old workings was necessarily a difficult operation, but, special measures being taken to secure the safety of the work, the driving was completed successfully, and this main road has since been equipped with endless rope haulage and is now serving the whole of that area of the Maccauvlei coalfield now being worked. During the year additional compressed air coal-cutters and hammer-drills were installed, and two electric coal-cutters were purchased as an experiment to ascertain practically how far such coal-cutting machinery can be utilised in cheapening the working of the more regular areas of the pit. The extension of the native compound to accommodate an additional 250 natives is completed, and the whole compound and native hospital has been fitted throughout with electric light. A number of thatched huts are being built as a native married location for the use of voluntary natives. The new screening plant continues to work very satisfactorily, minor improvements being added from time to time to deal with special requirements of particular classes of trade; the workshops have been electrified, the pumping plant on the River Vaal has been enlarged to provide an abundant supply of water for the Colliery boilers, and generally the whole of the machinery and plant, surface and underground, has been maintained in first-class working condition—the Colliery is now easily capable of an output of from 600,000 to 700,000 sales tons per annum, with a practically unlimited coalfield to draw upon. The increased number of European workmen necessitated by the introduction of the eight-hours' day again demands additional housing accommodation being provided, which in these days of high wages, short working hours, and vastly increased cost of material, is a serious matter—the whole subject is having the serious consideration of your Board. The machinery and plant at Camp Colliery have been maintained in good condition, and the tunnel from the bottom of the downcast shaft under the River Vaal to the Maccauvlei Coalfield in the Orange Free State having so successfully withstood the exceptionally heavy floods at the end of 1917 and beginning of 1918, has been dammed to ease the cost of pumping—the tunnel will not suffer by the flooding, and, as the Camp shaft and underground pumping station are safeguarded, the tunnel can be pumped dry in two to three months whenever trade conditions justify the expenditure on the railway sidings, screening plant, workshops, etc., required to complete the equipment.

THE VEREENIGING BRICK AND TILE CO., LTD.

Steady progress was maintained at the works of this subsidiary company. The demand for all classes of goods manufactured exceeds the works' capacity and the Directors of that Company have under consideration the further extension of the plant. In common with all other industries great difficulty is experienced in purchasing new plant. At the last Witwatersrand Agricultural Society's Show this Company was awarded a gold medal for the excellence of its products.

VEREENIGING TOWNSHIP.

During the past year the Company disposed of seventeen erven at fair prices. The township is growing at a rapid pace. During the year 31 additional buildings were erected. The new public buildings consisting of Court House, Post Office, Pass Office, etc., are now completed and occupied. The new premises of the Standard Bank of South Africa, Ltd., are nearing completion and will be a great acquisition to the town. The latest extension to the building and plant of the Vereeniging Milling Co., Ltd., is almost finished and will represent the pioneer installation for the storage and handling of maize in bulk by the Silo and Elevator system in South Africa. Plant for the manufacture of by-products from the maize is also in course of erection, which, when completed, will be another important industry at Vereeniging. The Company's hotel and boating scheme is being proceeded with and will do much to further increase the popularity of the place. Good progress has been made with the building of the Rand Water Board Barrage. The wagon bridge over the Vaal River is not yet completed. The piers are finished and the approaches are being made, but the iron work remains to be done. The Union Steel Corporation (of South Africa), Limited, in which your Company holds an interest, again had a most successful year. Their works are being added to continually. The presence of this industry at Vereeniging is of very great benefit to your Company and its subsidiary company, The Vereeniging Brick and Tile Co., Ltd. The Directors have again much pleasure in placing on record the Board's appreciation of the loyal services rendered by its officials and staff. I now beg to move the adoption of the Directors' Report and the Accounts.

Mr. C. B. Kingston seconded the Chairman's motion; which, on being put to the meeting, was carried unanimously.

EDUCATION QUESTION.

Mr. Louis Marks urged the Provincial Government to recognise that companies such as theirs had a growing population to deal with. Owing to lack of educational facilities the workmen were compelled to send their children to the towns after they reached a certain standard. He suggested that the Government should increase educational facilities at such places as Vereeniging, so that workmen's children could remain with their parents and still be able to obtain secondary education.

Mr. Louis Marks moved, and Mr. Roy Lewis seconded, that confirmation be made of the action of your Directors in declaring, on 3rd February last, a dividend at the rate of five per cent., less tax on all shares fully paid up, and on all shares partly paid up on the amount paid up to the 31st December, 1919, to all shareholders registered to 31st December, 1919. No other rominations having been received the Chairman declared the retiring Directors, Messrs. Isaac Lewis and Louis Marks, duly re-elected. Messrs. Douglas, Low and Company, the Company's Auditors, were declared re-elected, no other nomination having been received. The fee for the past audit was left in the hands of the Board to fix. The meeting terminated with a vote of thanks to the Chairman.

African Banking Corporation, Ltd.

Authorised Capital	**£2,000,000**
Subscribed Capital	**£2,000,000**
Paid-up Capital	**£1,000,000**
Reserve Fund	**£ 360,000**
Reserve Liability of Shareholders	**£1,000,000**
	£2,360,000

Head Office: 63, London Wall, London, E.C.

☞ **Branches throughout South Africa and Agents and Correspondents throughout the World.**

THE WEEK IN THE SHAREMARKET.

A Steadier Tone—Pretoria Cements, Silvers, Modder Easts and African Oils the Features.

There has been more evidence of steadiness in the market of the past week than has been noticeable for some considerable time past. Until the complexities of the exchange question are in some degree straightened out, any marked advance in local quotations is hardly to be expected. But the numerous enquiries received by local firms of brokers as to whether the present is an opportune time in which to buy indicate a public disposition to come into the market again if the outlook undergoes no further change for the worse. The near approach of the dividend period has doubtless had much to do with a general firming up of the best stocks. In a month from now most of the dividends will be announced, and it is generally anticipated that they will be considered satisfactory when the decline in the gold premium and the increases in costs of working and of realisation are taken into account. Modder Easts have exhibited an improving tendency, and the shares have been dealt in up to 23s. 3d., the three years' options to 2s., and the four years' up to 7s. Rumours are current to the effect that arrangements are being made for an increased milling capacity for this mine. Pretoria Cements on the announcement that bonus shares are to be distributed have advanced to 107s., and Transvaal Silvers, after being unduly depressed to 40s., have advanced to 48s. These two stocks, together with African Oils, which have improved to 15s. 9d., have been the features of the week's market. Diamond and tin stocks continue dull, and coal shares are inactive.

	Fri., 21st.	Tues., 25th.	Wed., 26th.	Thurs., 27th.
Anglo-American Corp.	33 0*	33 3	32 6*	33 0*
Apex Mines	7 3†	7 3†	7 3†	—
Bantjes Consolidated	2 10*	2 11	2 10*	2 10*
Brakpan Mines	—	55 6†	51 0†	50 0*
Breyten Collieries	—	8 0*	8 0*	—
Brick and Potteries	—	5 0*	—	—
Bushveld Tins	1 3*	1 4*	1 5*	1 4*
City and Suburbans	6 0*	5 9*	5 9*	—
City Deeps	—	42 6*	43 0*	45 0*
Con. Diamonds	—	39 0†	38 6†	37 0†
Clydesdale Collieries	—	22 0*	—	22 0*
Con. Investments	—	21 3*	—	21 0*
Con. Langlaagtes	15 0*	—	15 0*	15 0*
Con. Main Reefs	10 9*	—	10 9*	11 0*
Con. Mines Selection	—	22 6*	22 6*	22 0
Coronation Freeholds	1 6*	1 5*	1 5*	1 6*
Coronation Syndicates	8 0A	7 6*	—	7 6
Crown Diamonds	8 6	8 6*	8 0	8 9
Crown Mines	—	—	49 6†	—
Daggafontein Mines	12 6*	11 9*	12 6†	11 0
Do. Options (4 years)	0 1*	—	—	—
East Rand Coals	2 3	2 3*	2 3*	2 3*
East Rand Deeps	0 9	0 6*	0 7*	1 0†
East Rand Props.	6 9*	6 9*	6 9*	6 9*
Eastern Golds	1 3	1 0*	1 0*	—
Ferreira Deeps	5 0*	—	—	—
Frank Smith Diamonds	11 6*	11 10½	12 3	12 0A
Geduld Props.	39 3*	39 0	37 6*	37 0
Ginsbergs	—	—	—	1 3*
Glencairns	1 3*	—	—	—
Glencoe Collieries	6 3*	6 3*	6 3*	6 3*
Glynn's Lydenburgs	15 6†	—	—	—
Government Areas	83 3	83 9	83 3	82 6
Jhb. Bd. of Executors	37 6*	37 6*	37 6*	37 6*
Jupiters	2 9*	2 6*	2 6*	2 4*
Klerksdorp Props.	2 3*	2 3*	2 0A	—
Knight Centrals	3 8*	3 7*	3 9	4 0†
Knights Deeps	—	4 9*	4 9*	4 9*
Lace Props.	9 6	9 6*	9 0*	9 0*
Leeuwpoort Tins	18 0*	18 9	18 9	18 6*
Lydenburg Farms	8 0*	8 0*	8 0	8 3
Meyer and Charltons	92 6†	92 6†	—	92 6†
Middelvlei Est.	—	—	1 3*	1 3*
Modder B.'s	122 6*	123 0	122 0	121 6*
Modder Deeps	46 9	47 3	47 0	47 0
Modder Wests	17 9*	17 9	17 9*	17 9†
Modder Easts	22 6*	23 3	22 9	22 7½
Do. Options (3 years)	1 11	2 0	1 1	1 3
Do. Options (4 years)	6 6	6 9*	7 0	6 9
Hume Pipes	22 6	23 0	22 6*	22 0*
National Banks	270 0*	–	270 0	280 0†
New State Areas	25 3*	25 3A	25 3*	25 0
New Boksburgs	—	1 1*	1 1	1 1*
New Eland Diamonds		50 0*	50 0*	62 0†
New Era Cons.		—	8 3†	—
New Geduld Deeps	—	1 9*	1 8*	1 8*
New Heriots	–	8 0†	–	8 0†
New Kleinfonteins	7 3	7 3	7 3	7 3
New Modderfonteins	65 0	64 6*	65 3	65 9
New Unifieds	2 3	—	2 9*	—
Nigels	10 0†	10 0†	8 0†	—
Nourse Mines	—	10 0†	6 3*	—
Pretoria Cements	96 0	107 0	106 6	105 0
Princess Estates	0 4*	0 3*	—	0 3*
Rand Nucleus	—	1 4*	1 4*	1 5*
Rand Selection Corp.	71 0*	65 0*	—	—
Randfontein Deeps	6 6†	5 6*	6 6†	6 6†
Randfontein Est.	16 6*	16 9*	16 6*	16 3*
Roberts Victors	12 6†	10 0	10 0	10 6
Rooibergs	9 4*	9 1*	9 2*	9 0*
Roodepoort Uniteds	—	1 6†	1 3†	—
Rouxville Diamonds	18 6*	18 6*	17 6	17 6
Shebas	2 0†	2 6†	2 0†	2 0†
Simmer Deeps	1 0†	—	—	1 0†
S.A. Breweries	35 0†	—	33 0†	—
S.A. Lands	4 6	4 8*	4 6	5 0†
Springs Mines	42 9	42 9*	42 0*	42 0*
Sub Nigels	14 9*	15 0	14 6*	14 6
Swaziland Tins	—	—	13 0†	—
S. Van Ryns	7 6	—	7 0	7 0*
S.A. Townships	10 0	10 0*	10 0*	10 0
S.A. Alkali	20 6	21 0	21 0	20 0*
Transvaal G.M. Estates	9 6	9 0*	9 0	9 0*
Transvaal Silver	42 0A	40 0*	48 0*	48 0*
Transvaal Option	20 9*	21 0	—	26 0*
Van Ryn Deeps	80 0*	80 0	81 0	81 0*
Van Dyks	1 6*	—	—	—
Village Deeps	8 6*	—	8 9*	10 0*
Victory Monarch	—	—	60 0†	60 0†
West Rand Cons.	—	2 6*	—	2 6*
Western Rand Estates	3 6*	4 0†	—	4 0†
Witwatersrand Deeps	8 6*	9 0	—	9 0*
Wolhuters	3 0*	3 0*	3 0*	3 0*
West Springs	15 6	16 0	15 6	15 9
West Options	2 1*	2 3	2 3*	2 3*
Zaaiplaats Tins	6 9	6 6*	6 9*	6 9*
Union 5 per cent.	£97	£97½	£98*	£98*

*Buyers. †Sellers. aOdd lots bEx London

PERSONAL.

The many friends of Mr. Hugh Marriott, the well-known consulting engineer of the Central Mining and Investment Corporation, will be pleased to hear of the recent honour conferred upon him by his appointment as a governor of the Imperial Mineral Resources Bureau.

New Mining Inspectors.

Seven new inspectors of mines, three for the Rand and one for Pretoria, and another for Bloemfontein, with two relief men, will commence their duties within the next few months. Inquiries show that the new appointments have been resolved upon to ensure the betterment of mining conditions and the diminution of dust. It is thought that thereby the present enormous charges in respect of phthisis will eventually become less. These charges are expected to reach a million and a quarter for the first year under the present Act, and thereafter to fall to £800,000 per annum. For five years under the old Act the monthly expenditure was £35,000 only.

THE BRITISH GENERAL ELECTRIC CO., LTD.

Corner LOVEDAY & ANDERSON STREETS,
:: :: JOHANNESBURG. :: ::

P.O.Box **2406.** Telephones **4242** & **4243.** Telegrams : **"CURRENT, JOHANNESBURG.'**

SOUTH AFRICAN BRANCH OF

THE GENERAL ELECTRIC CO., LTD., England

Capital £6.000.000.

Manufacturers and Suppliers of Everything Electrical.

WORKS :

WITTON ENGINEERING WORKS,
Witton, Birmingham.

BIRMINGHAN CARBON WORKS,
Witton, Birmingham.

STEEL CONDUIT WORKS,
Witton, Birmingham.

PEEL-CONNOR TELEPHONE WORKS,
Salford, Manchester.

ILEENE WORKS,
Birmingham.

LEMINGTON GLASS WORKS
(Lamp Bulbs, etc.) Lemington-on-Tyne.

EXPRESS LIFT CO., LTD.,
London.

FRASER & CHALMERS ENGINEERING WORKS,
Erith.

WATSON & SONS (Electro Medical) LTD.
London.

SALFORD INSTRUMENT WORKS,
Salford, Manchester.

PIRELLI GENERAL CABLE WORKS,
Southampton.

ROBERTSON LAMP WORKS,
Hammersmith, London.

OSRAM LAMP WORKS,
Hammersmith, London.

UNION STREET WORKS,
London, S.E.

The above works find employment for over 15,000 people.

Branch Office and Stores: 89, Castle Street, Cape Town.

Agencies at Durban, Port Elizabeth, East London, Pietermaritzburg,
Bulawayo, Delagoa Bay, Beira, Mozambique, Dar-es-Salaam,
Zanzibar, Mombasa, Nairobi.

BRITISH TRADE WITH SOUTH AFRICA.

The exports from the United Kingdom to British South Africa in the first three months of 1913 and 1920 were as follows:—

ARTICLES WHOLLY OR MAINLY MANUFACTURED.

	1913	1920
Iron and Steel and manufactures thereof:		
Iron, wrought, bars, angles, etc.	35,563	£27,367
Cast Iron manufactures	23,120	46,477
Steel, bars (excluding sheet and tin-plate bars)	45,591	50,184
Rails, steel, for railway use	86,116	10,343
Railway, etc., material (other kinds) ..	27,079	86,067
Wire	17,719	43,518
Wire manufactures	38,279	155,381
Galvanised Sheets, Flat and Corrugated	109,798	410,755
Anchors, Grapnels, Cables and Chains (including tackle made of chain)	5,634	19,872
Tubes, Pipes and Fittings (Cast)	12,885	79,531
Tubes, Pipes and Fittings (Wrought) ...	81,743	113,511
Nails and Tacks (other than Wire Nails), Rivets and Washers	6,763	11,892
Screws (for wood)	6,165	31,921
Bolts and Nuts (including Screws for Metals)	15,208	35,282
Manufactures of Iron and Steel (other sorts)	126,213	114,996
Vehicles.—Rail:		
Locomotives (Steam and Other)...	46,328	218,695
Carriages for passengers, complete and parts thereof (except Axles, Tyres and Wheels)	15,009	48,311
Wagons and trucks and parts thereof (except axles, tyres and wheels)	11,001	176,312
Road:		
Mechanically propelled Touring Cars and Commercial Vehicles	62,740	20,784
Chassis for Motor Cars	2,272	6,942
Motor Cycles and Tri-cars, and parts thereof	48,331	49,492
Other than mechanically propelled Cycles and parts thereof	25,526	57,802
Other kinds	7,887	11,434
Machinery:		
Prime Movers, not electrical	51,735	16,996
Agricultural	25,636	36,049
Machines and Machinery (all other sorts)	237,738	122,891

CORRESPONDENCE AND DISCUSSION.

South African Coke.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—In your issue of May 15th you publish a paper read before the Institute of Electrical Engineers by Professor Buchanan on the uses of electricity in the Union. I am not directly concerned with the subject of electricity, but I wish to draw attention to the Professor's references to South African coke. There are, of course, good South African cokes and bad. In regard to one of the former, which is a Natal coke, Messrs. Pattinson & Stead, the Government Analysts, of Middlesboro', England, report upon it as follows: "The ——— coke compares favourably with the Durham cokes in specific gravity and porosity, but it is harder and contains more ash." In another place they say: "——— coke is identical with best Durham foundry coke." The Professor is right in regarding a high percentage of ash and sulphur as detrimental, but neither of these are excessive in the Natal coke which I have in mind, the ash being 10·50 per cent. and the sulphur ·65 per cent. The ash content, it is true, is a little higher than best Durham, but the only disadvantage of this is that a little more of the Natal coke is required to produce the same results. I would like to inform the Professor that the method of manufacture which he recommends has been in use in the manufacture of the coke I refer to for ten years past.—Yours, etc.,

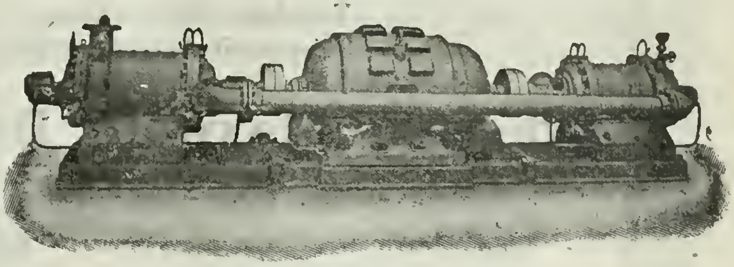
CHAS. A. O. BAIN.

Johannesburg,
May 20th, 1920.

Wolhuter.

The report of the directors of the Wolhuter for the quarter ending 30th April, 1920, states: Total development footage, 999 ft.; total footage sampled, 621 ft. The payable reef disclosures were as follow: Main Reef, 69 ft., reef width 39·2 in., assay value 8·3 dwts.; Main Reef Leader, 20 ft., reef width 5·7 in., assay value 82·0 dwts.; South Reef, 125 ft., reef width 33·4 in., assay value 15·3 dwts.; Pyritic Reef, 43 ft., reef width 58·0 in., assay value 14·6 dwts. Tonnage mined, 96,970 tons; tonnage milled, 91,400 tons; total yield, 25,756 fine ozs.; total yield per ton, 5·636 dwts. Working revenue (including estimated premium on gold), £135,356, or £1 9s. 7d. per ton milled; working costs, £113,697, or £1 4s. 10d. per ton milled; working profit, £21,659, or 4s. 9d. per ton milled; net sundry revenue, £154; total profit, £21,813. Government and Provincial taxes, £5,432; capital expenditure, £69; undermining rights annuity, £3,966; bewaarplaats moneys accrued, £313. General remarks: In arriving at the profit results above quoted, the value of the gold output has been based on the following estimated prices per fine ounce: February, £5 10s., less 5s. per fine oz. for realisation charges; March, £5 5s., less 6s. 3d. per fine oz. for realisation charges; April, £5 2s. 6d., less 7s. 6d. per fine oz. for realisation charges. The large increase in realisation charges is due to the banks raising the exchange rate on gold proceeds. In accordance with the settlement made by the Chamber of Mines with mine workers a retrospective adjustment of white wages was made in February, in respect of which £2,700 is included in the above working costs, which belonged to the period prior to the current quarter.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN
MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

Shipping and the Coal Situation.

The coal crisis of the world is emphasised, as far as South Africa is concerned, by the delay in the weekly arrival of the English mail steamer. For a good while past the mail boat has arrived on the morning of Monday. This week, however, the mail did not arrive until the end of the week, instead of at the beginning. Particulars as to the delay of the Walmer Castle have been cabled and published, and need not be further referred to. According to latest advices the South Wales coal miners had Saturday, Monday and Tuesday as official Easter holidays, but the last weekly returns (April 8) showed a very satisfactory increase in production from the South Wales and Monmouthshire districts. The counter-balancing effects were sectional stoppages—of which the cables do not tell us—which were reported to be increasing in number. There were also labour troubles, more or less serious, at the Swansea and Port Talbot docks. Prices for coal were nominal on the basis of 110s. to 112s. 6d. for large coal, and 95s. to 97s. 6d. for small coal. Bunker coal was quoted at 80s., large; 60s. small; 75s. wrought through. Coal is being exported from South Africa to Europe. Steamers calling at Union ports for bunker load up to the fullest extent, the masters going so far as frequently to make use of all vacant deck space. Coal is also being exported from Newcastle (N.S.W.) to Europe, a sea journey of 12,000 miles. The coal trade of India is increasing, and the latest report ("Fairplay") is that large quantities are being exported to Europe. Some details should be of interest to Union coal mine owners. In 1918 the total production of Indian coal amounted to 20,722,000 tons, or about 13·8 per cent. more than in 1917. The average value at the pit's mouth was 4·6 rupees per ton, against 3·11 rupees in 1917, 3·6 rupees in 1916, 3·5 rupees in 1915, and 3·9 rupees in 1914. The value for 1918 was the highest on record, the lowest being in 1905, when 2·8 rupees per ton was reached. The declared export value of the coal is about two and a half times the value at the pit's mouth. The coal controller adopted the policy that none but the very best coal should be despatched to foreign markets, the price, f.o.b., being fixed at 12 rupees per ton.

British Gold Policy.

American opinion regards the present gold movement from London as an indication of the courage and foresight of English bankers and business men, according to a statement issued by the main office of the Guaranty Trust Co. of New York. The company issues a bi-monthly review of foreign trade conditions, and the statement referred to is contained in the opening paragraph of that review, which reads as follows: "Shipment of gold from England aggregating at the moment of writing nearly $50,000,000 (£10,000,000), and the possibility that they may continue for some time have directed attention to an extraordinary situation in international trade. Those who have steadily contended for a long-term view of America's opportunities for trade expansion under the new world conditions see in this distribution of England's gold supply the conviction of a great international trading nation that the maintenance of any specific gold reserve is of less importance than the maintenance of credit in markets where it is England's purpose to set up lasting and invaluable trade connections. It appears to them that England, confident of her ability to make her production and distribution of commodities and services exceed in value her required purchases, is just now using her slender gold resources to the utmost. Not only over a term of years will the gold now being laid down here go back in the form of commissions, charges, and interest, but also England will have established greater trade relations and reaped the advantage of a greater reputation for financial courage and resourcefulness. This is no adventure into uncharted seas for England. Her history is the history of the use of every means to promote British trade. Her devices to meet the present situation are a challenge to the enterprise of America. England's confidence in herself invites the confidence of others. The more clearly the facts become known as to the progress Europe is making toward a return to normal conditions, the wiser appears the present British policy, and the clearer appears the obligation of America to assume a broader view, with respect to the use of credit resources abroad."

REID BROS. (SOUTH AFRICA) LIMITED.

Telephone : 6070., Private Exchange.
Telegraphic Address : "REEF."
P.O. Box 802.
JOHANNESBURG.

Offices : Maxwell Buildings, Harrison Street.

IMPORTERS OF

Mining Material and Engineering Appliances.

SOLE AGENTS FOR—

Messrs. The Hardy Patent Pick Co.'s

"HARDIAX" Coal Cutter, and
"HARDY-SIMPLEX" Air Rock Hammer Drill.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

American Prices Falling—Cautionary Cables—Timber, Bricks and Paint—Painters Unemployed—No Plate Glass—Second-Hand Material and Machinery—Trams and Trucks in Big Demand—Mines and Labour.

There is a less pessimistic feeling, particularly since the newspaper reports from America that prices of clothing had fallen some 20 per cent. This has been followed up by a Reuter's message saying the movement in New York for the reduction of prices is spreading over a wide area. On the Chicago market corn and pork have suffered extreme breaks, while there was heavy selling in sugar futures which broke a cent per lb. May cotton broke 35 points. As against this a private cable was received from New York cautioning a Johannesburg firm not to be misled by the newspaper announcements of a great reduction of prices in the United States. The actual facts are that certain luxuries are being reduced in price owing to the large retail stocks. On the contrary, the cost of manufacture continues to increase, owing to wages, railroad rates of freight, coal and all other expenses, also on account of high prices of raw material. A private cable was received from England on Monday last advising the Johannesburg partner of a firm not to purchase any goods, as prices of sott goods were likely to recede considerably. Against this a local merchant is advising his business connections to make allowances for a rise in steel when tendering for any forward contract. This was mentioned to a commercial broker who remarked that the pendulum was swinging back gradually, as it was impossible for the world to pay the ultra-high rates. Naturally, we must not expect too much, but it is encouraging to an anxiously waiting world that a start on the down grade has been made. The drop in wool and cotton through various causes has made things possible in Johannesburg, as our merchants are generally well ahead in discounting eventualities. It was not so long ago when the chairman of the Cunard Line announced that his company were preparing for a freight cutting competition. According to a private letter from Liverpool is said that the American trade into that port has dropped off considerably and a number of labourers has recently been dispensed with, all on account of the high prices and the inclination of the British Government in discouraging imports, other than foodstuffs. The rent and merchandise, as well as foodstuffs profiteering Bills already discussed in Parliament have undoubtedly checked the rise in rents, also the speculators have been chary in touching foodstuffs. It is rather a coincidence that our University students should institute an economic dress expedient. If supposing this extends to a hatless brigade, *a la* the blue coat boys in London, that would soon bring down the price of hats in a similar manner, as it appears from an examination of the cables that the New York people struck against the price of luxuries, hence the intense competition amongst the great stores which quickly brought down values. A Port Elizabeth merchant is responsible for the statement that, in his view, the decline in the price of wool, skins, hides, etc., was of a permanent character and the reign of big values was at an end. As regards steel and iron, those were the things that increased last and would no doubt be the last to decrease. But the Vereeniging steel has now to be reckoned with as that has kept the imported prices in check. An expert was asked what he thought of the Vereeniging steel as compared with the imported. He replied that for certain kinds of work some people preferred it to the overseas article.

IRON AND STEEL.

Business is in a very quiet state, with nothing particular doing. In fact the drop in wool prices and the disturbing cable news from America in reference to some drastic falls in values in luxuries, which is extending to other things have more or less upset our trade equilibrium in all commercial circles. However, all steel and hardware quotations of the latest show signs of advancing rather than decreasing for both English and American factories. A few weeks ago it was stated in these notes that imported mild steel was being sold at cost price to clear a parcel owing to the Vereeniging steel being such a strong competitor at lower prices than the oversea article. Then again 4 lb. hammers are being offered in town at 4d. lb. and they cannot be bought in England under 5d., therefore the price in Johannesburg should be at least 6d. A large manufacturer in the Birmingham District of picks, shovels and similar steel goods states the order for steel goods is overwhelming, so much so that orders from new customers are refused. Nevertheless orders are returned to be completed at manufacturer's convenience, at prices ruling when delivered. The quotation for hollow steel is 1s. to 1s. 1d. lb. in Johannesburg and is likely to advance to 1s. 3d. shortly. One group of mines has an order in the Exchange for 25 tons of hollow steel which, according to one authority, means that it will not be completed from any one firm's stock in town, therefore a portion may be accepted for spot delivery and the remainder to arrive from overseas. Mild imported steel is 37s. 6d. to 39s. 6d. per 100 lbs. Wire nails, although there are quite decent stocks in town, prices remain firm at 52s. 6d. to 65s. per 110 lb. It is anticipated these prices must enhance in the near future in sympathy with the Canadian market. Steel plates are still the feature in dealings, as the demand is constant and stocks are low and anything but well assorted as some sizes are unobtainable. The quotations are: 1-16th in., 75s. to 80s.; 1-8th in., 70s. to 75s.; 3-16th in., 65s. to 70s.; $\frac{1}{4}$ in., 62s. 6d.; $\frac{3}{8}$ in., 60s.; heavier thicknesses, 52s. 6d. per 100 lbs. Several sizes in bar steel are scarce; quotations are: $\frac{1}{4}$ in., 65s.; $\frac{3}{8}$ in., 50s.; $\frac{1}{2}$ and $\frac{5}{8}$ in., 40s. to 42s. 6d.; other sizes about 40s. per 100 lbs. Vereeniging quotes 36s. 6d. and 38s. 6d., according to sizes for rounds; $\frac{3}{4}$ in. and upwards. Dunswart iron, 33s. Here are a few opinions as to the effect of the American news. The world cannot pay these high rates, therefore the pendulum seems likely to swing towards a general reduction in rates. Steel goods were the last to advance and will be the last to come down, more particularly as Belgium and Germany are still out of our market, although a few Belgium quotations are beginning to come through,

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

much on a par with the English. Another opinion is that any fall in American iron and hardware prices will not affect prices here for some time. The opinion of three other merchants is similar. As regards soft goods, merchants in Johannesburg are not in a happy frame of mind. One who is in partnership with a wool dealer at Port Elizabeth says that something like £10,000 is in jeopardy over the partial collapse in the South African wool market.

TIMBER, BRICKS AND PAINTS.

Timber, more particularly 9 x 3 solid deals, is scarce. In fact stocks are very low and no relief expected until about the middle of June, although one firm has received a small consignment of deals from their coast house for a few special customers. Bricks are easier to get for quicker delivery, but the best kinds are not cheaper, but there are more seconds and second-hands available Best stock bricks delivered in Johannesburg, 80s. to 85s.; seconds say about 40s. to 50s. at kiln. Pressed and wire cut are £6 to £7 and difficult to get, as these are used for facing and business premises. Cement is still scarce and anyone wanting a few bags has to pay about 15s. a bag. Blue lime 4s. 9d. per 160 lbs., and plaster ditto 5s. 9d. White unslaked lime 7s. 6d., and slaked 6s. 6d. per 200 lbs. Business has slackened off throughout the building trade and its subsidiaries. There are a number of painters unemployed because property owners are standing aside, awaiting the result of the Rent Profiteering Bill. Hence the demand from that quarter is very poor. Generally speaking business for new propositions has been hung up, but any number of plans, according to a builder's broker, are being passed through the Municipality, to be brought out when the building sky is a little clearer from the various clouds so recently gathered to prevent speculative builders from new enterprises. Turpentine is so acutely scarce that some of the largest distributors cannot even find a single bottle to sell to their customers. The nominal price is £10 per case of 2-4's and £10 15s. for 10-1's. Linseed oil 115s. raw and 120s. boiled per case. White lead 95s. to 100s. per 100 lbs. and 1s. 3d. per lb. retail. American salad oil 135s. per case 2-4's: cylinder 42s. to 47s. and engine 38s. 6d. to 45s. per case of 2-4's. Indian castor oil, Cape No. 3, 95s. to 100s. 2-4's. Medical do. 110s. to 130s. Resin, 8½d. per lb. Grease, £42, American: local, £25 to £30 per ton. Very little or no plate glass is in town, but window or sheet glass is again fairly plentiful.

SECOND-HAND MATERIAL AND MACHINERY.

Cast-iron scrap is £8. Good rails from 12 to 20 lbs. are from £22 10s. to £27 10s. per ton. A decent set of points is £7 10s., most of these are made, or rather fixed up, here, by cutting and turning the old rails Cocopans are only to be pisked up occasionally and then quite £25 has to be paid for anything like decent wearing capabilities. Side tip trucks of ordinary quality range from £15 to £22 10s., saddle back trucks from £20 to £25 each. Traction engines and steam wagons anything from £300 to £600 according to size and condition. There is a big call for portable engines for commercial and agricultural work. Here are a few quotations. One 8 h.p. Clayton and Shuttleworth 60 lbs. pressure in good order, £250. A 6 h.p. Marshall portable engine and boiler 55 lbs. pressure, £275 on rail. One semi-portable Tangye engine and boiler 4 h.p. in good order, £125 at Cape. One 6 h.p. Marshall portable steam engine £275 on rail Eastern Province. The farmers are the principal buyers or perhaps rather engineers, as very few yards have assorted stocks, simply a few lines in machinery. Dealers do not expect much from the mines, when any really close, as the machinery is mostly obsolete and too heavy for the ordinary yards to handle. There is an excellent demand for wood working machinery for furniture and builders' cabinet making. Second-hand saw spindles are quoted at £12 to £20; hand mortising machine £15. Automatic machines for sharpening and setting band saws £20. One spindle machine for wood working, in first-class condition £140 f.o.r. Durban. One automatic rope-feed circular saw-bench up to 42 in. saw £160 f.o.r. Durban. Circular saws are from £2 upwards.

LOWER GRADE MINES AND LABOUR.

There is an official inquiry in reference to the closing of the Simmer Deep. It is satisfactory to notice that the evidence and proceedings are in public and duly reported in the Press. As regards the anticipated unemployment a reply was given in Parliament that (1) the Government is in constant touch with the unemployment question in all parts of the country and especially at the present moment. On the Witwatersrand in the case of many persons unemployed in the mining industry it is probable that this phase will be only temporary, and that a considerable process of reasonable reabsorption will eventuate; (2) until the position assumes more definite shape and that the extent of possible absorption is known it is impossible to make any pronouncement in the direction indicated.

British Engineering Exhibitions.

The Machine Tool Trades Association of Great Britain has arranged to hold an exhibition of machine tools and kindred engineering products in Olympia, London, during the coming autumn. Practically the whole of the available space which is very extensive, has already been booked. The British Electrical and Allied Manufacturers' Association will hold an electrical exhibition, probably in the same building, during 1922.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

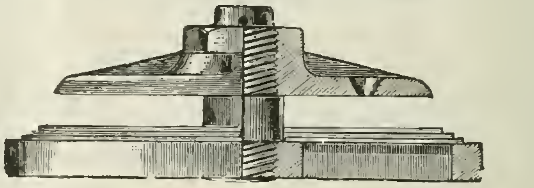
Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams. "THAINE."

KINGHORN'S PATENT
METALLIC VALVES
FOR
PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.

SOLE SOUTH AFRICAN AGENTS:

GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."

Latest Company Registrations.

Spitzkop Farms, Ltd., 36a Market Avenue, Benoni; capital £6,000.

African Mining Concessions, Ltd, 152/3 Exploration Buildings, Commissioner Street, Johannesburg; capital £2,000.

Munnik Farmers, Ltd., Portion "D." Bloemfontein No. 1880, P.O. Munnik; capital £700.

The Rand Basket and Wicker Works, Ltd., 44 Commissioner Street, Johannesburg; capital £5,000.

Robt. Murray & Co., Ltd., 7 Natal Bank Chambers, Market Street, Johannesburg; capital £1,000.

C. and H. Gold Mining Syndicate, Ltd., 14 Soper Road, Berea, Johannesburg; capital £1,000.

Mundel & Herzfeld, Ltd., Plein Street, Rustenburg; capital £15,000.

"Sole o' Mine" Footwear Repairing Co., Ltd, 250b Bree Street, Johannesburg; capital £750.

Geo. Leal & Co., Ltd., 52 Smal Street, Johannesburg; capital £1,000.

Merton Hotels, Ltd., 3 Criterion Buildings, corner Rissik and Jeppe Streets, Johannesburg; capital £12,000.

The Western Rand Gold and Land Co., Ltd., 45 Standard Bank Chambers, Commisioner Street, Johannesburg; capital £3,900.

Greylingstad Forestry Co., Ltd., Smuts Street, Willemsdal, District Heidelberg; capital £1,000.

Muller & Joffe, Ltd., Burger Street, Standerton; capital £1,005.

H. and S. Syndicate, Ltd., 44 Permanent Buildings, Harrison Street, Johannesburg; capital £1,000.

The Shaw Patent Chilling and Freezing Process Co., Ltd., 117 Schoeman Street, Pretoria; capital £10,500.

The Standard Furnishing Company, Ltd., 63 Standard Bank Chambers, Commissioner Street, Johannesburg; capital £6,000.

Continuous Centrifugals, Ltd., 69/70 Cullinan Buildings, corner Main and Simmonds Streets, Johannesburg; capital £25,000.

Consolidated Agricultural Investments (Africa), Ltd., 5, 6, 7 and 8 Royal Chambers, corner Simmonds and Fox Streets, Johannesburg; capital £10,000.

Milk Producers Union of South Africa, 13 Royal Exchange Buildings, Johannesburg; capital £7.

Hamilton Wood & Co., Ltd., 26 Monument Street, Krugersdorp; capital £400.

Hand Diamond Dredging Syndicate, Ltd., 119/120 Stock Exchange Buildings, Johannesburg; capital £3,500.

Springs Produce and Live Stock, Ltd., House No. 15, Second Avenue, Springs; capital £3,000.

Adam & Davidson, Ltd., 20 Exploration Buildings, Johannesburg; capital £100.

Gantner Estates, Ltd., Rothsay Buildings, Rothsay Street, Benoni; capital £3,000.

Saaler & Franks, Ltd., 9/10 Second Floor, Trust Buildings, Fox Street, Johannesburg; capital £8,300.

W. R. Jecks & Co., Ltd., 141 Commissioner Street, Johannesburg; capital £12,000.

African Poultry and Live Stock Co., Ltd., corner Main and Bedford Avenues, Benoni; capital £500.

Letabas Drift, Ltd., 36a Market Avenue, Benoni; capital £18,000.

The Calz Syndicate, Ltd., 68 Stock Exchange Buildings, Holland Street, Johannesburg; capital £1,000.

The Pietermaritzburg Timbers, Ltd., 17/19 Hatfield House, corner Eloff and President Streets, Johannesburg; capital £600.

The Griquatown Mining Syndicate, Ltd., 152/153 Exploration Buildings, Commissioner Street, Johannesburg; capital £1,000.

Brown's Motors, Ltd., Rand Trading Company Buildings, 89 Market Street, Johannesburg; capital £10,000.

Matzap Diamonds, Ltd., 154/8 Exploration Buildings, Johannesburg; capital £2,000.

Sarigny & Darev, Ltd., 125 Exploration Buildings, Commissioner Street, Johannesburg; capital £7,000.

Poultry Farmers Agency, Ltd., 67a Rissik Street, Johannesburg; capital £1,000.

The Epworth Children's Homes, Victoria Buildings, 95 Commissioner Street, Johannesburg; capital £100

Die Transvaal Eksekuteurs Kamer (Heidelberg), Beperk, Venter Street, Heidelberg; capital £10,000.

FOREIGN COMPANIES.

Blinklip Diamonds, Ltd., care of J. S. Richardson, 150-152 Stock Exchange, Johannesburg; capital £50,000.

African Portland Cement Co., Ltd., care of F. E. Davis, 151, 155 and 156 Exploration Buildings, Commissioner Street, Johannesburg; capital £275,000.

E. J. Lawton, Ltd., care of J. J. van der Westhuizen, 116 Marshall Street, Johannesburg; capital £20,000.

Kalahari Diamonds, Ltd., care of W. E. Bleloch, and/or C. A. Griffiths, both of Transvaal Bank Buildings, Fox Street, Johannesburg, and/or R. B. Saner, First Floor, Aegis Buildings, Loveday Street, Johannesburg; capital £80,000.

Newcastle Iron and Steel, Ltd., D. R. McLachlan, 35 General Mining Buildings, Johannesburg; capital £125,000.

The Lewebar Collieries, Ltd., Care of Gustav Durholt, 7 Pretoria Street, Hospital Hill, Johannesburg; capital £30,000.

INCREASE AND DECREASE OF CAPITAL.

Rand Co-operative Stores, Ltd., Johannesburg; increased £800 to £1,180.

Transvaal Produce Co., Ltd., Johannesburg; increased £2,000 to £3,000.

R. M. Dowson, Ltd., Johannesburg; increased £2,500 to £6,000.

N. Kallenbach, Ltd., Johannesburg; increased £1,000 to £15,000.

South African Alkali, Ltd., Johannesburg; increased £57,500 to £92,500.

The Union Fruit and Citrus Farms, Ltd., Johannesburg; increased £10,000 to £50,000.

The Scotia Talc Mine, Limited, Johannesburg; increased £12,000 to £25,000.

Klempman, Ltd., Johannesburg; increased £6,000 to £11,000.

South African Salt Union, Ltd., Johannesburg; increased £21,500 to £28,500.

Modderfontein East, Ltd., Johannesburg; decreased £839,367 to £810,597.

The Ballindalloch Co., Ltd., Johannesburg; increased £20,000 to £30,000.

M. Huthwaite, Ltd., Johannesburg; increased £1,000 to £2,250.

OXY-ACETYLENE
WELDING AND CUTTING PLANT MANUFACTURERS.
Complete Equipments.
McGOWAN, WILD & CO.,
"ECONOMIC" WELDING BLOWPIPE, the most Efficient and Economical on the market.
Suppliers to the Trade of all Accessories for Welding and Cutting.
OXYGEN-PRESSURE-REGULATORS, CAST-IRON WELDING STICKS, FLUXES for Cast-Iron, ALUMINIUM, BRASS, COPPER, PURIFYING MATERIAL, TUBING, Etc.
Stockists : JENKINS & CO., Greenmarket Square, CAPE TOWN.
Sole Representatives for South Africa :—
MACLACHLAN & CO.
ATHENIAN CHAMBERS, SHORTMARKET ST., CAPE TOWN

ALLEN, WACK & SHEPHERD, LTD.
Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.
Vendors of High Grade Oils and Greases.
Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

THE CLIMAX ROCK DRILL AND ENGINEERING WORKS, LTD.

(Managing Director: W. C. STEPHENS.)

Beg to announce that

FROM THE 1st JUNE, 1920,
THEIR SOUTH AFRICAN AGENTS
WILL BE

Messrs. S. SYKES & CO., LTD.,

Southern Life Buildings, Johannesburg.

All communications should be addressed to:

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, Ltd.,
P.O. Box 2303,
SOUTHERN LIFE BUILDINGS, Corner of Main & Harrison Streets,
JOHANNESBURG.

Phone 2190. Telegrams: "PSYCHE." Stores: Upper Railway Road, Doornfontein.

Local Manager - - - - K. B. TAYLOR.

ENGINEERING SECTION.

A GRAIN ELEVATOR SYSTEM FOR THE UNION.

The report of the committee of investigation on a grain elevator system, issued in 1918, conclusively demonstrated its advantages, and in principle the Governmeit has approved the scheme. The ground of preliminary enquiry has now been covered by a comprehensive and instructive report by Mr. Littlejohn Philip, the consulting engineer who was authorised to go into the matter from the standpoint of technical details and practical necessities, and advise as to the adaptation of the system to the country's requirements and conditions. A Blue Book containing this report, together with a memorandum by Sir William Hoy, and an expression of concurrence from the Railway Board, has been laid before Parliament. The recommendations of the consulting engineer are substantially in accord with those of the Grain Elevators Committee, with the important exception that he proposes two instead of three port elevators, viz., at Durban and Capetown respectively, and not one, at present, at East London. He recommends approximately the same aggregate port elevator capacity (72,000 tons against the Committee's 70,000), and 71 country elevators, having an aggregate storage capacity of 160,200 tons, as against the Committee's proposal for 62, with an aggregate capacity of 116,500 tons. The increased capacity here provided for is due to the increases in the grain crops in certain districts occurring during the season following that in which the Committee made its report. Sir William Hoy, after careful consideration of the whole question, has come to the conclusion that the Government should approve the complete scheme recommended, but in view of financial and other circumstances thinks it would suffice for the present to aim at having, say, 34 country elevators (17 as channels of supply for Durban and a corresponding number for Capetown), ready by the time the two port elevators are opened. The remainder of the country elevators, he considers, could be built thereafter, as experience might dictate and financial conditions permit. The capital cost of these proposals would be £1,442,700, as against £1,799,000 for the complete scheme. The agricultural and grain interests have been urging that the elevators should be ready for the 1921 crop. This is impossible, and matters will have to be carried through expeditiously, Sir William Hoy points out, if the requirements of the 1923 crop are to be served. If this is to be aimed at, the necessary funds must be provided on the current year's Estimates, and the work started as soon as the Estimates are passed. There are many other heads, in addition to that of actual waste of grain, under which substantial savings are rendered possible by the elevator system. The whole business is operated on the most economical lines. It is estimated that on the whole the direct net financial saving, after deducting interest and other charges, would be:

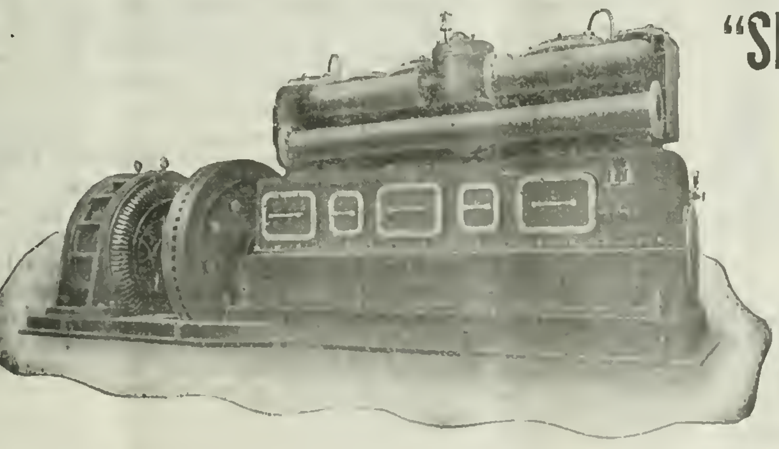
	Per annum.
On the basis of 800,000 tons through the country elevators, and 500,000 through the port elevators	£479,055
Ditto 700,000 and 400,000 respectively	408,098
On 400,000 tons through port elevators, if no country elevators were erected	133,719

The Grain Elevator Committee had previously estimated that the saving to the country of a complete scheme of port and country elevators would be not less than £500,000 per annum. Every farmer, in the opinion of Mr. Littlejohn Philip, would benefit to the extent of 1s. per bag of 200 lbs. as a minimum estimate. In many cases, he holds, the farmers would be better off, and particularly the small farmers, to the extent of 2s. per bag.

Research in Corrosion.

At the recent congress of the British Institution of Metals a valuable report was read on the corrosion of condenser tubes—a subject in which so many engineers are keenly interested. This report was the fifth of a series, recording researches undertaken by a special committee of the Institute. Experiments have been made with alloys of copper and zinc, and many suggestions made for avoiding or reducing corrosion. In the British Navy trials are being made with oxidised tubes, and a British company has been formed to exploit an electrolytic process which deposits and maintains a protective layer of lime on the surface of the tube.

Box 3807. Tel. 5892.
WRIGHT'S ROPES
H. ALERS HANKEY - - - Sole Agent



"SENTINEL" Air Compressors
are characterised by
High Efficiency, Accessability, Simplicity and Reliability.
These can be delivered from stock.
SOLE AGENTS:
The Griffin Engineering Co. Ltd.
94 MAIN STREET, JOHANNESBURG.

NEW INDUSTRY FOR LOURENCO MARQUES.

The huge works of the Smithfield Cold Storage Company at Matolla are now nearly finished, and probably in three or four months from now the great undertaking will be in working order and justifying its existence as the largest factory of its kind in the country (says the *Lourenco Marques Guardian*).

Recently an informal visit of inspection was made by the heads of Government Departments concerned with its operations, and considerable interest was evinced in the progress made with the project and the efficient and thorough manner in which the machinery and equipment are being installed. The new factory, as far as its construction goes, is finished, and it is an exceedingly fine building, planned on the most scientific lines for efficient refrigeration and economic working. Under its lease from the Government the operations the company can engage in are the preparation of frozen or chilled meat for export, the preparation of canned meat, meat extracts and similar products, the manufacture of agricultural fertilisers, the provision of cold storage for butter, eggs, game, poultry, etc., and the milling of cereals. The right to carry on other industries may be granted by the Government in the future, but even as it is a great industrial undertaking is being established already. In the old buildings taken over under the lease milling has been carried on for some time, and although the old mill that was part of the concession has a large capacity, new machinery will be required as soon as possible if production is going to be maintained on the most economic basis. The old cold storage works are in the same way, equally out of date, but they may serve a useful purpose for a time for the preservation of fish, game, eggs, poultry, and dairy produce collected for export.

The company's strongest suit, therefore, will be in the new central building it has erected at a cost of something like £120,000, which comprises abattoirs on the latest plan and chilling and freezing chambers large enough to deal with a very considerable output. Now the works are nearing completion opportunity will be given for a full description of them on the occasion of the official opening, and all that need be said at the moment is that a "small scale Chicago" is apparently being established at our doors. Cattle will be brought by rail and road from all parts of the country, slaughtered under the most scientific conditions, and the finished meat and products placed in the ships for export at the company's own pier; whilst all the by-products will be commercially treated with a minimum of waste. Undoubtedly, the efforts of the company will be of the utmost importance to the industrial life of the port, and they should bring considerable wealth to the district in the employment they will provide for a large number of people, and the opportunities they will give for a remunerative market for cattle breeders and agricultural producers. Owing to war conditions and the industrial upheaval that has taken place throughout the world, the company has had by no means an easy task to accomplish what it has done—indeed, it is astonishing to see it has done so much—and it deserves every encouragement and help from the Government now that it has done all the preparatory work, and is ready to develop resources that have hitherto lain dormant and practically untouched. South Africa has now a splendid opportunity of forging ahead with her industries, and when we get progressive men willing to sink their capital in expanding the volume and variety of our marketable products they are entitled to unstinted praise and all the assistance that can be given them. It has been a reproach in the past that people in this wonderful country have not realised its tremendous possibilities, but when capital is found to develop latent resources it is a patriotic duty on the part of all concerned to do all that is possible to support it so that our white population may be increased, and the country made wealthier and more self-supporting. That the Smithfield Company's operations here will have this result there can be no question.

South-Western Transvaal Diamond Returns.

The returns from the various alluvial diamond diggings in the South-Western Transvaal for the month of March amounted to 9,588 carats, value £158,662, as compared with 7,860 carats, value £115,347, in February, and 8,675 carats, value £140,771, in January. The returns for March are officially reported as follows:—

Name and No. of Farm.	Value.	No. of diggers registering finds.
Bloemhof 130	£6,676	146
Blesbokfontein 63	16,928	232
Bloemheuvel 171	206	7
Biesjeslaagte 23	88	2
Christiana	228	10
Cawood's Hope 79	319	3
Doornbult 93	489	4
Diamantdoorns 131	33	2
Driekoppies	80	1
Dievedraai 245	2,521	19
Eerstebegin 290	230	1
Eastleigh 593	706	6
Goudplaats 318	650	1
Grootdoorns 133	320	1
Holloway's Rust 142	635	6
Italie 328	1,445	3
Klipkuil 104	920	18
Kafferpan 65	120	4
Klippan 174	51	1
Kromellenboog 108	82	1
Katdoornkraal 163	30	2
Koppiesvlei 54	162	2
Kareepan 137	13,463	113
Kameelkuil 142	30,086	231
Leeuwfontein 143	7,206	52
London 33	6,024	63
Mooifontein 128	848	2
Middelbosch 326	70	1
Mimosa 75	225	1
Maroetjesfontein 120	43	1
Olivenfontein 376	95	1
Plessisdam 121	3,406	44
Rondevlei 129	24	2
Rietput 120	80	1
Rietkuil 138	20,879	200
Syfergat 150	6,068	8
Schweizer-Reneke	4,638	12
Sandringham 25	460	1
Schaapboschdraai	32	2
Vechtvallei 329	74	1
Zwartlaagte 68	29,298	242
Zevenfontein 165	2,724	32
Total	£158,662	1,482

Compulsory Financial Advertising.

The Committee of the Glasgow Stock Exchange, following on the resolution of the Committee of the London Stock Exchange (and of the Johannesburg Stock Exchange), has resolved that before granting leave to deal in securities which are issued without any prospectus publicly advertised or by circular to shareholders, they will require that an advertisement be inserted in two leading papers giving all necessary details relating to the formation of the company and to the flotation of the issue, and stating that the directors collectively and individually will be held responsible for the information advertised.

* * * *

The Position at the Messina Mine.

Light was thrown on the position at Messina by some questions in the Assembly this week. Mr. Munnik asked the Minister of Mines in the Assembly: (1) Whether the Government knew that the Messina copper mine in the Northern Transvaal had been closed; (2) whether this action had been taken as a result of the strike amongst the white employees; (3) whether the Government knew that great hardship was being suffered by these employees in this fever tract of country; and (4) whether the Government would cause investigation to be made as to whether the closing of the mine was not against the public interest and take such steps as were necessary to protect the public interest. The reply of the Minister was as follows: (1) I have received information to the effect that mining operations have been discontinued temporarily. The intention is to keep the mine partially dewatered, and in the meantime the construction of a new mill and smelting plant will be proceeded with. It is understood that after completion of the erection of this plant the mine will be re-opened, but this will take some time. (2) Not so far as I am aware. (3) As far as health conditions are concerned, it is understood that the conditions have been much improved. (4) An investigation is already taking place into the circumstances of the stoppage of underground work. In reply to a supplementary question by Col. Creswell, the Minister added that, so far as he was aware, this mine had not given notice of its closing.

The Week's Meetings.

NEW KLEINFONTEIN.

The annual general meeting of the New Kleinfontein Gold Mining Company, Limited, was held on May 25 in the board room, National Bank Buildings, Colonel Dalrymple presiding.

The Chairman said that the result of the year's work was a profit of £103,095. Gold premium since July 24, 1919, represented £112,131 or rather more than the total working profit at the mine. Against the premium was a general demand from all white employes for an increase in wages due to the increased cost of living. The natives also came forward with demands for increases in their pay. The cost of stores had in most cases been on the steady up-grade, and since the close of the year the rate of exchange on the transfer of funds from London, where their gold was realised, to South Africa, where they needed it to pay wages, etc., had risen from ⅜ per cent. to 8½ per cent., equal to about 6s. 11d. per fine oz. The net result was that companies which might have benefited by the premium and kept their heads above water were now being compelled to close down in spite of it, owing to the great increase of costs which had accompanied it.

Shaft sinking had been confined to the western or Apex section, 568 feet having been sunk in the east incline. The total footage driven, risen and sunk in all sections, with the exception of this shaft sinking, was 15,280 feet. This represented a reduction of over 2,000 feet compared with 1918, due to the fact that in the eastern section all the main drives had practically reached the boundaries of the property, and the development in that district had been confined to raising and winzing. The footage sampled was 10,597 feet, of which only 35.8 per cent. gave an average value of 9.59 dwt. over 54 inches, the remainder being classed as unpayable. These figures showed an improvement over those of the previous year the value having increased by 1.96 dwt. This improvement was accounted for by the pursuance of the policy of selective development and by the good values they had obtained on the upper main reef in the Orient section. With the pre-war pay limit of 3.76 dwt. mining value the ore reserves at the clase of the year were 2 312.000 tons, having an average stoping value of 5.53 dwt. over a width of 58.2 inches. This showed a decrease of 283,000 tons of .6 inches in width but an increase of .12 dwts. in value. The development in the eastern or Kleinfontein section has been the one satisfactory feature of the year's work underground.

Last year, and in fact for several years past, in view of its significance, he had dealt at considerable length with the development of the western or Apex section of the mine, and he had pointed out that it was on the discoveries made in this district that they had to rely for the future of the company. He now regretted to have to report that after years of steady exploration and development in this shaft the board had been forced in the best interests of the shareholders to suspend all work there, and to concentrate on the extraction of ore principally from the old Kleinfontein and to a small extent from the Benoni sections. In coming to this decision the board had in mind the fact that after years of development work, during which 75,000 feet or about 13½ miles of drives and other development had been accomplished, the ore content of reasonable value—which before the war might have been considered payable—amounted to about 300,000 tons milled, and 300,000 tons at present standing in the mine, or a total of 600,000 tons developed. The 300,000 tons still remaining in this section were so scattered that it was certain under existing conditions they would not pay to extract. Notwithstanding the board's decision to stop all work in the existing workings, they had not abandoned hope of finding a payable mine in this section of the property. They have reopened with their neighbours, the Brakpan Mines the question of their continuing one or more of their drives into the eastern boundary of our mining area. These drives if so continued would enter the property at a much lower level than any other of the present workings and it was thought that if sufficient encouragement was found in these lower workings it would be possible to reopen the question of further exploration of the Apex Mynpacht. The Brakpan Mines, although anxious to help them, were unable to do so at present.

In reply to Mr. Buttrill, the chairman said that the Modderfontein East had their Apex plant for an indefinite period. The agreement could be cancelled on six months' notice. They paid £2,200 per month for it. The reef struck below the 14th level was the main reef.

The report and accounts were unanimously adopted.

NEW GEDULD DEEP.

Speaking at the annual meeting of the New Geduld Deep, Ltd., on May 26th, Mr. E. Mansfield said that shareholders might be interested to learn that since the company's inception profits from dealing with the township and mining assets had resulted in distributions in cash and shares of approximately 5s. 6d. per 2s. share. Of greater practical interest was the question as to what profits they might anticipate in the future. The answer depended mainly on their success in obtaining an extension of township rights over the two mynpacht areas of which they owned the freehold. The underlying mining rights belonged to the Government, and no doubt would be included with Eastern Geduld when tenders were invited for a mining lease of that area; but until a mining lease was concluded and sites were marked off for shafts, surface equipment, etc., the department was reluctant to grant the company township rights, in spite of the improbability that any portion of the surface of their ground would be required for mining purposes. He could only express the hope that the Government would not delay much longer in calling for tenders to work these claims. If business considerations were paramount one could feel confident that the exceedingly good terms given for adjoining areas already leased and the urgent necessity of providing new mines to absorb workers now engaged on older and low grade properties would ensure the rapid opening up of areas like Eastern Geduld. However, their ground was right in the centre of the growing district and was not likely to become of less value by waiting. It was adjoining the townships of Springs and Geduld and was ideally situated for township purposes. iWth regard to cash resources they were in a very healthy position. The total capital of the company was represented by cash. and easily realisable cash assets. totalling just over 2s. per share.

Messrs. J. O. Reid and E. Mansfield were re-elected to the directorate.

ASBESTOS.

FOR SALE—

FIBRE (Handcobbed), also the PROPERTY producing over **50** tons per month, and other claims, developed and undeveloped.

APPLY—

E. E. SOMERSET,

Selukwe, Rhodesia.

ASBESTOS

HOBDELL WAY & CO., LTD.,

MINORIES, LONDON.

Cables: "HOBNAILS."

Institution of Mining and Metallurgy.

After an interruption of six years, owing to the War, the annual dinner of the members of the Institution of Mining and Metallurgy was held in mail week, the president (Mr. Hugh K. Picard, Assoc. R.S.M.) occupying the chair, and Mr. Frank Merricks, C.B.E. (the president-elect), the vice-chair. After the usual loyal toast had been honoured, Sir Richard Redmayne proposed " The Institution and the Mineral Industries." Reviewing the all-important work done by the members of the institution, he said that if the future is like the past it will be great indeed. The institution had never figured so prominently, so admirably, in the eyes of the nation as it did during the War. There was no department of the Government in which members were not called in to co-operate. They rendered yeoman service. Looking ahead he foresaw a great vista in front of the institution in the way of benefiting the nations that form the Empire. It had always been alive to scientific and technical education, and one of its greatest successes was the creation of the Imperial Mineral Resources Bureau. It is hoped that the bureau will constitute a clearing house of information connected with the mineral industry of the Empire in the first place, and of the world in the second place. It will publish a mineral digest dealing with the statistics and everything connected with the trade in minerals, as well as a digest of mineral laws. After agriculture the most important industry in the country is that relating to Minerals. The I.M.R.B. will bring together the producer and the consumer; it will find uses for minerals which are at present unknown; it will develop the Empire's resources and put them to the best use. Governments come and governments go, but the mineral industry continues and must expand until those offshoots of the Mother country, so rich in mineral resources, so sparse in population, become even as the Mother country.

* * * *

Alluvial Diggers' Board of Control.

For some time past a movement has been in progress for the establishment of an organisation representative of all the various interests concerned in that branch of the diamond industry which has to do with the finding and disposal of the alluvial product. The Government has welcomed the scheme for the reason stated by the Minister of Mines at the diggers' congress held at Barkly West last December, viz., that it would furnish a responsible body to which the Government and everyone else would look for advice on matters affecting the welfare of the digging community. From the *D.F. Advertiser* we learn that the establishment of a " Board of Control for the Protection and Advancement of the Alluvial Diamond Interests of Griqualand West " is now an accomplished fact, and the first meeting of the fully-constituted Board was held at Barkly West on the 28th of last month. There are, of course, already in existence several voluntary bodies formed to assist the digging industry. There are, for example, the diggers' committees, elected by the claim-holders, chiefly to represent the diggers in reference to such matters as the issue of licences and the regulation of health conditions or other affairs of general concern. There are also the diggers' unions, for purposes of mutual co-operation, including the Vaal River Diggers' Union, established in 1904, with a membership of about 1,600 in its present twelve branches, which extend throughout the whole area of Griqualand West. The Board of Control in no sense conflicts with these existing organisations, but, on the contrary, is designed to afford a common channel through which they may make their views and wishes felt. The functions of the Board, as defined by Government, have to do with such problems as native labour—upon the vital importance of the interests connected with which there is no need to dwell—water supply, the constitution and financing of diggers' committees, education, hospitals, health, police posts, and generally speaking all the salient factors bearing on the welfare or otherwise of the growing community located on the alluvial fields. At the first meeting of the Board, of which Lt.-Col. T. J. Wynne, O.B.E., Chief of the Detective Department, and the senior Government official of the district, is the chairman, several matters of very considerable importance were discussed, including the pegging of claims at the proclamation of new areas, which has been a foremost topic in the minds of the diggers of late. A sub-committee was formed to frame and submit to the Government the various suggestions forthcoming, and it is felt that in this respect alone a useful purpose has been served. The Board is desirous of doing everything in its power to investigate any grievances, and of using its influence on behalf of the diggers in every possible way.

IMPORTANT TO SECRETARIES OF COMPANIES.

THE ARGUS PRINTING AND PUBLISHING COMPANY,
- - - LIMITED, make a Speciality in the - - -

PRINTING OF COMPANIES' ANNUAL REPORTS,

and can execute these

IN TWENTY-FOUR HOURS AFTER RECEIPT OF COPY.

THE NEW MACHINERY LATELY INSTALLED IN THEIR WORKS is the means of their expediting this particular class of work.

ESTIMATES GIVEN ON APPLICATION TO

The Argus Printing & Publishing Co., Ltd.,

Box 1014. Lower President Street, Johannesburg.

'PHONE UP 3232. Representatives especially set apart to wait upon Clients on receipt of a Telephone Message.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

Established 1891. Established 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

Vol. XXIX., Part II.] June 5, 1920. [No. 1497.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

Agents for Great Britain and America: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

Annual Subscription Rates: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News ... 319
Topics of the Week:
The Discussion on the Low-Grade Mines ... 321
The Rand's Ore Reserve ... 323
Methods of Payment on the Rand ... 324
The Railways and the Coal Trade ... 325
Mica in the Eastern Transvaal ... 327
How to Obviate Closing Down Mines ... 329
The Labour Conference: Report by Secretary for Mines ... 331
The Position and Prospects of the Trixie, Ltd. ... 332
Correspondence and Discussion: "A View on 'Exchange'" ... 334
The Week in the Sharemarket ... 335
Trade and Industries Section:
The Week in the Mining Material and Engineering Trades ... 337
Company Meetings: Standard Bank; Springs Mines; Daggafontein Mines; New Area Consolidated; Brakpan Mines; Rand Selections; Anglo-American Corporation; E.R.P.M.; Knight Central; West Springs ... i.

Notes and News

The "C.M.S." Group Meetings.

Full reports of the annual meetings of the subsidiary companies of the "C.M.S." group will be found in another part of this issue, and make very cheerful reading. Mr. F. R. Lynch presided at all the meetings of the subsidiary companies and Mr. Ernest Oppenheimer at the Anglo-American Corporation meeting. In point of length and variety of interests the last-named was the most interesting and important of the several gatherings, and evoked from Mr. W. L. Honnold a very informative statement regarding the prospects of the Consolidated Diamond Fields of S.W.A. Mr. Honnold—who left on his return to New York this week—recently paid a visit to the diamond fields of the south-west coast, and his report on their possibilities will be read with much interest both in this country and overseas.

* * * *

The Standard Bank Meeting.

The proceedings at the recent annual meeting of the Standard Bank are reported in this issue, and strike a welcome note of optimism in the prevailing gloom. Whatever financial storms we may have to face, the chairman declares the bank can easily weather; and the figures of the balance sheet—which appears in our advertising columns—amply substantiate that statement. The prosperity of the Standard Bank is indissolubly bound up with that of South Africa, and the splendid position of the bank is the best possible tribute to the inherent financial stability of the country.

* * * *

The "Safety First" Prize Presentation.

The presentation of prizes by Sir Robert Kotzé last Saturday night on behalf of the "Safety First" Committee to the successful competitors in the underground officials' contests proved a notable function. The list of winners has already been prominently printed, and the occasion was turned to good account by Sir Robert, whose speech took the form of a very impressive address on accidents and the death-rate from accidents on the mines. Mr. John Munro, the chairman of the "Safety First" Committee of the Rand Mutual, presided, and the gathering was symptomatic of the growth and importance of the "Safety First" movement on the Rand.

* * * *

The April Gold Output.

The statistics issued by the Transvaal Chamber of Mines as to gold production in April show that the mills of the Witwatersrand crushed 2,065,446 tons for a recovery of 667,926 fine ozs., or 6·417 dwts. per ton. Taking the price of gold at £5·125 per oz. the total value of the production is £3,248,759, or 31s. 5d. per ton, and with working costs at £2,714,819, or 26s. 3d. per ton, the resultant profit was £533,940, or 5s. 2d. per ton. Sixteen of the forty-five productive companies worked at a loss. In March working costs were 25s. 2d. per ton and the profit was £716,610, or 6s. 6d. per ton.

* * * *

The Tale of the Big Diamond.

So long as mines are mines often closely associated with the Stock Exchange, and so long as human element is what it is, rumours will have their way. During the last few months of diamond activity a common report has been that such and such a diamond syndicate or company had discovered a gem of untold worth. Sometimes there was a substratum of veracity in the rumour—the four-carat stone quickly became the 400-carat stone, and so forth. But as often as not there was not a vestige of truth in the report. One of the most sensational of these rumours was published by a contemporary the other day. It was stated that "an enormous diamond of 110 carats" had been discovered at the Premier. It would be interesting to know what our contemporary's measure of magnitude in regard to diamonds is, and it would be still more interesting to know how the rumour got about, because we have inquired of the Premier Company's office and find that the Premier people know nothing about this alleged discovery. In point of fact, this "enormous" diamond has not been found at all!

More Problems in Reef Nomenclature.

Mr. H. S. Denny, well known on the Rand as one of the technical advisers to the General Mining and Finance Corporation a few years ago, has been endeavouring to elucidate the mysteries of the Heidelberg reefs, and particularly to construe the recent cables which have been despatched to London by the Union Government into something which will save the district. Mr. Denny appears to find principal solace in the fact that " in the announcement of April 27th the Government definitely states that the Van Ryn reefs underlie the Kimberley reefs on these farms," *i.e.*, Tulipvale, Klippoortje, Heidelberg town lands, etc. The Government's cable " does not refer to Nigel horizon underlying farms mentioned," and Mr. H. S. Denny's line of deduction appears to be Nigel, Van Ryn and Main Reefs are all the same, therefore Van Ryn = Nigel, and therefore Van Ryn underlies the Kimberley reefs on the farms mentioned. This is merely a reiteration of the thesis of the orthodox school of geology, but Mr. H. S. Denny's interpretation of the Government's second cable is expressed in a manner which is by no means unfavourable to the heterodox disciples who own ground in this locality and who seek to prove the existence of Van Ryn at outcrop.

* * * *

Mr. C. A. Denny on the Far East Rand.

Mr. G. A. Denny has written an elaborate paper (with plans and sections) on " Some Geologic and Economic Aspects of the Far East Rand Syncline in general, with special reference to the possibilities of the farm Maraisdrift, Heidelberg district, Transvaal," which has just been circulated among the shareholders of the Rhodesia Exploration Company, and deserves far wider publicity than it has so far received. It should certainly be closely studied by all who are, or may be in the future, concerned either as directors or technical advisers in the opening up of any new properties in the 200 square miles or more on the Eastern and South-Eastern Rand, where the Main Reef (alternatively known as the Van Ryn or Nigel) series is believed to lie at a workable depth. Like his critical paper on " Rand Mining Economics " read before the South African Institute of Engineers in 1917, Mr. Denny's present contribution to the study of " The Far East Rand Syncline," or, as he would, perhaps, prefer to call it, following Dr. Hatch, "The Van Ryn-Nigel Syncline," will doubtless arouse considerable discussion in Witwatersrand circles. Much of the general geological part of the paper will, of course, command universal assent among the Rand's leading geologists. Mr. Denny demonstrates that the virgin areas of the South-Eastern Rand are well worth prospecting on the prospects of the Van Ryn-Nigel reef alone. " A safe generalisation (he suggests) is to assume that the chances of encountering the larger and richer gold patches in any property which embraces a section of the eastern shore-line of the depression as far south as Heidelberg are better in the deeper than the shallower zones, and that all properties within a line drawn from Heidelberg to Modderfontein, which have a sufficient mining area on the reef, at such a distance from the [ancient] shore-line as will give working depths of 2,000 feet and upwards, seem certain to find—as far as there is certainty in such things—the average conditions respecting gold distribution approximating to those that have been found by the producing mines in the particular vicinity."

* * * *

Union Corporation Progress.

The accounts of the Union Corporation (formerly Goerz & Co., Ltd.) for 1919 make another excellent showing. A few figures from the profit and loss account will illustrate the position:

	1917.	1918.	1919.
Realised profit, dividends, interest, etc., less amounts written off	£139,995	£177,219	£281,538
Expenses, etc.	25,001	31,839	43,621
Net profit	£114,984	£145,380	£237,917
To reserve account	20,000	20,000	40,000
,, Exploration reserve account	—	—	10,000
,, Dividend, per cent.	8	12	20
Carry-forward	24,934	45,364	58,281

While the realised profits are more than double those of 1917, they apparently do not reveal the full extent of the improvement. In the 1918 accounts the profit was stated " less exchange and amounts written off "; on the present occasion the deduction is amplified by " commission and bonuses to management and staff." The expansion in expenses is more apparent than real, for it includes £12,451 war suspense account written off. The directors have resisted the temptation to make an excessive distribution; the dividend, nevertheless, is very handsome—it is an advance of 66⅔ per cent.—and is equal to that of the two preceding years taken together. To a company of this description a reserve fund may be said to be a vital necessity, and from the first the fact has been kept well in mind. A beginning was made in 1917 with the appropriation of £20,000; a similar sum was allocated in the following year, and for 1919 the amount is duplicated, thus raising the fund to £80,000. Within the short space of three years, therefore, the directors have set aside nearly 10 per cent. of the capital, and have passed on to the shareholders 40 per cent. The assets, it will be seen, are just about double the capital plus the reserve fund as shown in the accounts. As an indication that the board is alive to possibilities, an exploration reserve fund has been started with £10,000, while the carry-forward receives a substantial addition. Some important changes are noticeable in the balance sheet. Government securities and British Treasury bills have undergone a reduction of £381,074; the amount thus rendered available is applied as to £192,871 in temporary advances; £27,000 is in sundry debtors, £22,000 reinforces the cash position, and the balance, with the reserve, goes into shares and debentures.

* * * *

The Banking Position.

The quarterly statements of the various South African banks appear in the last issue of the *Union Gazette*. Several features are worthy of notice. For the quarter 1st January to 31st March the note issue advanced from £7,984,465 to £9,011,118. These figures include legal tender notes to the value of £3,173,499, and " other notes " total £5,837,619. Deposits of all kinds increased in the same period from £87,866,326 to £94,156,508, and the total coin and bullion in the country advanced from £7,291,000 to £7,643,566. Gold specie to the tune of £720,000 was imported during January and February, the figures for March not yet being available. A comparison of the position as it was previous to the War with that now on record is instructive.

	1914.	31/3/20.
Legal tender notes	£1,083,000	£3,173,000
Other notes	1,066,000	5,837,000
Total notes	2,150,000	9,011,000.
Total deposits	33,305,000	91,156,000
Notes and deposits	35,455,000	103,167,000
Coin and bullion	6,913,000	7,643,000
Advances	31,170,000	56,356,000
Percentage of coin to notes and deposits	19·5	7·4
Percentage of advances to deposits	93·1	54·6

During the twelve months ended 31st March, 1920, the deposits in the banks advanced from £69,323,099 to £91,156,508; being eloquent testimony to the extraordinary and rapid accumulation of wealth in the country. Since the outbreak of the War the accumulation has nearly trebled. The banks, however, have not been able to maintain the percentage of gold reserves, the figures showing a fall from 19·5 to 7·4.

* * * *

Emerald Diamonds.

Registration of the Emerald Diamonds Company has now been completed and the prospectus will be issued in the course of the next few days. Latest reports from the properties are highly satisfactory.

TOPICS OF THE WEEK.

THE DISCUSSION ON THE LOW GRADE MINES.

The crisis in the affairs of the low grade gold mines of the Rand continued to engage public attention during the week. The publication of the final report of the Low Grade Mines Commission, with the consequent debate thereon, the findings of the committee of enquiry on the Princess Estate, the evidence given before the Simmer Deep Committee, and the correspondence between the Chamber of Mines and the Mine Workers' Union on the relaxation of the mining regulations, all combined to keep the question before the public. All this reiterated publicity, though doubtless wearisome to those only too familiar with the facts, cannot fail to have a good effect in enlightening public opinion. Next to the debate in the Assembly—a full report of which we await as we go to press—the most important event of the week was the circular sent by the Chamber of Mines to the Mine Workers' Union setting forth that in view of the precarious position in which the industry is placed it should be possible for the mines to re-arrange the existing practice in regard to underground work "in any reasonable direction calculated to increase productivity without the infliction of any hardship." The Chamber pointed out the difficulty put in the way of such re-arrangements by the mining regulations, and, on the question of the colour bar, it quoted from its own evidence at the Low Grade Mines Commission that: "Even if the immediate complete elimination were within the bounds of practical politics the Chamber would not advocate the adoption of that policy in opposition to the wishes of the great bulk of the European population of the Witwatersrand. The Chamber thinks, however, that there are directions in which the natives could be given increased scope of employment without seriously or even necessarily detrimentally affecting the employment of Europeans." "For all practical purposes" (the Chamber's letter proceeded) "that was the beginning and end of the Chamber's evidence on the colour bar question; whether it will become necessary for the Chamber to change its attitude on the matter at some future date depends largely upon whether the industry can be saved without such a course. In the meantime, the Chamber desires to ascertain what can be done by a re-arrangement of underground work. One direction in which the industry can be assisted lies in the better utilisation of the native labour force. As must be well known to the Union, a very large proportion of the time at present spent underground by the natives is wasted. In fact, under the present arrangement of underground work, large numbers of natives can be at their working places for only about five or six hours; and it is thought that if these hours could be extended without in any way lengthening the period spent underground by the natives, a great deal would be accomplished. Re-organisation to effect this is at present impossible by reason of certain of the regulations." The Chamber went on to propose certain minor alterations in the regulations which it specifies, and to the majority of those the Union apparently has no objection. It adds that "the improving of underground conditions be considered on individual mines with the working committee concerned," a very sensible suggestion which we may hope will produce good fruit. The finding of the Committee of Enquiry into the Princess Estate may also here be quoted as unfortunately typical of what may be expected from the other similar committees now sitting or about to sit. They state that: "1. Owing to the unfavourable underground position of the property, the bad condition of the shaft and the pumping plant, and the consequent difficulties with water, the tonnage milled and the development of the South Reef, which is the richer reef, has been curtailed. 2. That the decrease in tonnage and the rising cost of wages and stores have greatly increased the cost per ton. 3. The accident to the shaft in April this year made the position hopeless by rendering a portion of the mine inaccessible. The available reserve is only 58,000 tons, and the monthly tonnage that can be milled is very small. The committee finds that: 1. The company had no alternative but to close. 2. Continued working is impracticable. 3. As regards the effect of this mine closing to the neighbouring properties, the Durban Roodepoort Deep is likely to be affected by the overflow of water after a period of six months from the date pumping ceases." The speech from the chair at the annual meeting of the East Rand Proprietary Mines provides a melancholy commentary and confirmation of the Princess finding, and indeed the evidence is on all sides simply overwhelming as to the vital nature of the crisis we are now passing through. Sir Harry Ross Skinner put it in a nutshell when he said at the E.R.P.M. meeting: "It will be evident that the position of the mine is now wholly dependent on the gold premium. In order that we may continue active operations for as long a period as possible it has again become vitally necessary to consider, in the interests of the mine and the community, what effective means can be taken to meet the position. The productive factor has diminished, efficiency has lessened—both constituting a serious menace to profitable working. This condition of things, plus the increased costs, has caused your board to invoke the co-operation of the employees and the various trades unions in a special endeavour to bring the mine back to a profit-earning basis, however small. What we ask from our employees and the trades unions is to not only agree to a substantial reduction in the number of white employees—principally the less efficient—but to do away with certain artificial practices and prejudices which are inimical to the most economical working of the mine. I do not know what more we can do. The industry has put the case of such mines as ours clearly before the Government in the evidence given before the Low Grade Mines Commission; we have put the case of the mine clearly before and invited the co-operation of our employees through the workmen's committee, the good work of which we gratefully acknowledge." There is nothing we can add to these solemn words of advice and warning from those best fitted to judge of the position from the inside. In the interests of the whole community we may hope they have not come too late.

Consolidated Mines Selection.

The report of the Consolidated Mines Selection Company for 1919 states that the issued capital has been increased to £600,000 by the issue in November, 1919, of the 95,000 shares held in reserve. These shares were offered to shareholders at 30s. per share in *pro rata* proportions to their existing holdings, and were duly taken up. The premium accruing on this issue, namely, £95,000, appears in the balance sheet at credit of share premium account, and it is proposed to transfer this amount to reserve account. The whole of the authorised capital, therefore, is now issued, namely, £600,000 in 1,200,000 shares of 10s. each, fully paid. Debentures outstanding now stand at £77,420. The accounts show a profit of £200,170, including £13,712 brought forward. The directors recommend a dividend of 35 per cent. (less tax), and that £20,000, together with the amount standing to the credit of share premium account, namely, £95,000, be placed to reserve account, leaving, subject to further remuneration to directors and managing directors in London and Johannesburg, £33,170 to be carried forward. Cash and cash assets, as on 31st December last, exceed the total of current and contingent liabilities by £270,186; properties and unquoted securities, as valued by the directors, stand in the books at £20,249, while quoted securities taken at cost or under, but in no case higher than the market price at 31st December, 1919, amount to £781,655. Total, £801,901. The net profits realised on sales, commissions, etc., amounted to £159,395; interest and dividends, £85,012; transfer fees, £617; total net profit, £245,024, against which had to be written off: Expenses, etc., £18,568; debenture interest, £1,205; cost of investigations, claim licences, depreciation of office furniture, etc., £10,867; income tax London, and taxes Johannesburg, £24,925, leaving £186,458, which with the balance brought forward, £13,712, gives a total available profit of £200,170.

SIEMENS BROTHERS
& CO., LIMITED

RUBBER AND PAPER CABLES.
TELEGRAPH AND TELEPHONE CABLES.
FLEXIBLES.
"STANNOS" WIRES.
ENAMELLED WIRES.
JOINT BOXES.
COMPOUNDS.
TAPES.
CABLE APPLIANCES.
ACCESSORIES.
EBONITE
TELEGRAPHS.
TELEPHONES.
RAILWAY SIGNALLING.
SHIP SIGNALLING.
MINE AND POWER STATION SIGNALLING.
FIRE ALARMS.
LINE MATERIAL.
TUBULAR POLES.
LATTICE POLES.
INSULATORS.
LINE TOOLS.
FLUID CELLS.
DRY CELLS.
BATTERY CARBONS.

SIEMENS BROTHERS & CO., Limited, Woolwich, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE RAND'S ORE RESERVES.

Figures as at the End of Last Year—A Total of Ninety-One and a Half Million Tons—Approximate Increase 2,500,000 Tons—Incidence of the Gold "Premium" and Rising Costs.

In various recent issues we have given statistics as to the ore reserve position at different groups of mines, and with the publication of the last of the annual balance sheets and reports it becomes possible to give a complete table of the ore reserves of the whole Witwatersrand—the stock-in-trade of the industry upon which productive operations are dependent. The features of the year's activities on the Rand in regard to productive operations—that is to say, the incidence of the gold "premium" and of rising costs—are reflected in the development figures. It is to be noted that some companies show the additional tonnage which is represented in the ore reserves with gold at a definite premium (in the attached schedule the General Mining and Finance Corporation show additional reserves in respect of a premium of 30 per cent.), whilst other companies take no cognisance of the extra price.

Effect of Costs and Premium.

At the end of 1918 the payable ore reserves of Witwatersrand mines were estimated at ninety million tons, which was approximately a decline of six million tons compared with the estimates of a year previously. The outstanding feature of the year's work on the Witwatersrand in regard to ore reserves during 1918 was that although development was "speeded up" on the Far East Rand the increase in working expenditure compelled the elimination of millions of tons of low-grade ore from the estimates of payable reserves. Since the outbreak of hostilities in Europe and up to the end of 1918, the costs of operation on the Rand increased by the equivalent of 1¼ dwts. per ton, and in consequence large areas formerly reckoned profitable were ruled below the pay limit, whilst at the same time there was a general increase in the value of "pay" ore on account of the rise in costs. In December, 1918, working costs were 21s. 7d. per ton, and by December, 1919, they had risen to 25s. 6d. This is a very substantial advance in the costs of operation, and under normal circumstances there would have had to be a further large shrinkage in the payable reserves of the mines as at the end of last year due to the raising of the pay limit. The gold premium, however, luckily came to the rescue. But for this fortunate circumstance the payable ore reserves of the Main Reef series would have contracted to a figure which would have greatly impaired the credit and stability of the industry. For ore reserves are the stock-in-trade of the Rand, and a marked diminution would have been highly detrimental to the prosperity of the whole Union. On the old basis of gold values an average working cost of 25s. 6d. per ton meant that the mines had to recover not less than 6 dwts. per ton milled in order to pay expenses. Leaving aside any question of profit or dividend to shareholders, 6 dwts. per ton had to be yielded in order to meet the routine of normal expenditure. At the end of 1918 there were thirteen companies with "payable" ore reserves of a lesser value than 6 dwts. per ton.

With costs at their present level an average value of 6½ dwts. in the blocks is required to yield profits. It is to be observed that 25 companies with ore reserves amounting in the aggregate to thirty-eight and a third million tons, give values of 6½ dwts. or less per ton.

An Increase of 2½ Million Tons.

The total payable tonnage in the mines of the Rand at the end of last year was approximately 91,500,000 tons, or an increase of about 2½ million tons on the figures for a year ago. Statistics for individual mines as at the end of December last or nearest date are as follow:

Producing Companies.	As at December, 1919		
	Tons.	Dwt.	In.
Aurora West...	123,384	5·7	42
Bantjes Consolidated .	95,000	6·3	—
Brakpan...	2,484,117	8·74	70
City Deep	3,418,000	9·4	66
City and Suburban...	288,800	7·8	—
Consolidated Langlaagte ...	2,090,300	6·25	55
Consolidated Main Reef	1,425,470	7·3	53
Crown Mines	8,451,400	6·3	63
Durban Roodepoort Deep ...	1,077,500	6·6	49
East Rand Proprietary... ...	2,634,350	6·3	59
Ferreira Deep	932,400	8·0	—
Geduld Proprietary	2,580,000	7·4	61
Geldenhuis Deep	1,811,000	5·8	53
Ginsberg	1.375,200	5·9	53
Government Areas...	11,001,700	8·6	77
Jupiter	588.000	5·82	59
	partial 63.000	5·64	67
Knight Central	200.000	6·8	—
Knights Deep	997,000	4·8	—
	partial 41.000	4·5	—
Langlaagte Estate	1,002,490	6·5	52
Luipaardsvlei Estate	645,000	5·51	—
Meyer and Charlton	516.500	15·5	55
Modder B.	3,215.100	9·0	63
Modder Deep	3,775.000	9·1	77
Modder East	1,552.700	7·6	55
New Goch	97,044	5·9	51
New Heriot	167,580	6·6	48
New Kleinfontein	2.312,000	5·53	58
New Modderfontein	9.000.000	8·6	65
New Primrose	45,400	6·4	53
New Unified	149,000	6·5	47
Nourse Mines	1,513,600	6·8	51
Princess Estate	321,000	7·1	41
Randfontein Central	3.802,000	6·3	49
Robinson	229.400		—
Rose Deep	3.031,280	5·2	71
Robinson Deep	1,583,000	6·59	62
	partial 29,000	5·41	57
Roodepoort United	175,670	6·1	42
	187,832	4 2	47
Simmer and Jack	1,538,000	5·67	—
	plus reclamation 211.000	4·98	—
Simmer Deep	836.000	5·1	66
	partial 22,000	5·42	51
Springs Mines	2.417,298	8·74	63
Sub-Nigel	359,000	10·4	44·2
	partial 31,000	9·4	—
Van Ryn	1,347,916	5·6	52
Van Ryn Deep	3,200,000	9·1	72
Village Deep	2,389,700	6·3	62
Village Main Reef	378,510	7·0	—
West Rand Consolidated	1,005.000	6·5	51
	490.700	4·4	46
Witwatersrand	1,142.000	5·9	72
Witwatersrand Deep..	922,639	6·4	—
Wolhuter	856,870	5·8	63
Non-producing Company.			
Cinderella Consolidated ...	1,024,800	7	—
	Suspense 436,000	—	—

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S A. In a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January-May, 1920, we secured 19 out of 30 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

METHODS OF PAYMENT ON THE RAND.

The Springs Strike—A Satisfactory System at the Simmer—Payment on Results and How it may Best be Secured.

The strike of miners at the Springs Mines over a question of the interpretation of a contract serves to direct attention to the question of methods of payment based on a bonus scheme prevalent on the Witwatersrand. The whole subject is too large to be discussed at any length in the scope of this article, but attention may be directed to the fact that a scheme which has been in operation at the Simmer & Jack for some considerable time and which is based on the amount of ore produced and also the grade of the ore has given very satisfactory results.

THE SIMMER & JACK METHOD.

On several mines of the Rand efficiency schemes which give bonuses to shift bosses and the men in their sections are in vogue, the general basis of determination of winning sections being efficiency combined with accident prevention. The introduction of a grade factor as at the Simmer should certainly tend to minimise the breaking down of an unnecessary amount of waste rock. The whole subject of bonus schemes and their incidence on efficiency, grade and accidents is a most interesting one and would seem to merit more discussion than has so far been given it. At one mine or another during recent years most forms of payment have been tried—day's pay and day's pay plus bonus based on various sliding scales, monthly prizes to sections securing the greatest efficiency and most marked immunity from accidents, awards to stopers for the best fathomage per machine shift having regard to consumption of explosives and awards to developers and shaft sinkers conditional on factors of economy and safety.

SHORT-LIVED ENTHUSIASM.

It is probably impossible to devise formulæ which will take all these variable factors into account and which will give an accurate criterion of the value of a man or of a section of men for all mines, but we believe that the Rand has still a good deal to learn in the direction of evolving some scheme of payment on results which will be satisfactory to the management and the men alike, some kind of formula which will be simple both in its application and result and which will have a promise of permanency. Too often really good schemes of bonus payments arouse much enthusiasm for a few weeks and then through a change in management or in the subordinate management or because some of the employees without rhyme or reason become prejudiced against the system the whole scheme is dropped like a hot coal and nothing more is ever heard of it until in the fulness of time some other mine experiments on exactly the same lines, and, unaware of the valuable experience gained at the first proposition, falls into the same pitfalls of ennui and disinclination to carry a good thing in the face of difficulties. So far as we know there has been no attempt to co-ordinate the literature of the various devices which have been made on the Witwatersrand to give pay in adequate proportion to the value of the work done through the instrumentality of a bonus system. This is regrettable, for the reason that only by profiting from the experience of others can the best method be arrived at. We shall welcome any communication on this subject with a view to stimulating discussion of one of the most important problems with which the Reef has to deal.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

SOUTH AMERICA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

HEAD OFFICE:
MONTREAL, CANADA

ARGENTINE
Buenos Aires.
BRAZIL
Rio de Janeiro, Santos, Sao Paulo.
URUGUAY
Montevideo.
VENEZUELA
Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA
Barranquilla.
BR. GUIANA
Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON
Princes St., E.C.
PARIS
28, Rue du Quatre-Septembre.
NEW YORK
68, William St.
BARCELONA
Plaza de Cataluna 6.

THE ROYAL BANK
OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - - $500,000,000

THE RAILWAYS AND THE COAL TRADE.

Breakdown of New American Locomotives—A Serious Hindrance to Exports—Congestion at the Coast—Shipping Awaiting Coal—Latest Output Statistics—The By-Product Trade.

As we stated in our issue of a week or two ago, the coal output of South Africa expanded to a remarkable degree during the month of March, the tonnage sold by the whole Union for that month being more than 25 per cent. in excess of the February sales.

Decline in April.

In April, however, the tonnage sold was reduced to 912,929 tons, of a value at pit's mouth of £341,670, as compared with 990,960 tons, worth £375,000, in March. The shorter working time in April than in March would, of course, account to some extent for the reduction in output, but we understand that the more material factor has been acute shortage of transport facilities to clear coal to the coast and to the principal inland industrial centres. The temporary cessation of transport of other goods by the Railways for the purpose of delivering coal at the ports has to some extent eased the congestion of seaborne coal trade. But the Railway Administration of the Union has recently been dealt a very severe blow through the failure of a large number of the recently-imported new American locomotives.

The American Locos.

It will be recalled that some time ago extensive orders were placed by the Railway Administration in America for locomotives and rolling stock, the reasons adduced for giving the orders to the States instead of to Great Britain being that English and Scottish manufacturers were not in a position to guarantee delivery by any stipulated date; and moreover, that the cost of the plant required was less in America than in England. Such considerations were held thoroughly to justify the action of the Railway authorities in placing their orders outside the United Kingdom. Unfortunately, however, subsequent events have proved that the Administration made an unsatisfactory selection. The complicated exchange question has not recently tended towards economy by buying railway plant in America. But by far and away the most serious feature of the whole business is that thirty-eight of the new American locomotives are already in the repair shops, and are likely to remain there for some considerable time. These engines constitute a high percentage of the total number ordered. Although some of them have only just been put into commission, they are already in hospital. The trouble with all of them is that the boiler stays have collapsed, and Sir William Hoy's Administration is thus confronted not only with a huge repairs bill, but, what is more serious, a very material holding up of traffic, and particularly of the coal trade in consequence.

English v. American Engines.

It is an open secret that American engines have hardly been an unqualified success on the South African Railways, and as an instance of the superiority of the English "loco" over the Yankee type it may be pointed out that whereas the best of the old American types takes about 22 hours for the round trip, Witbank to Germiston with coal and back to Witbank, the new English engines perform the journey with a load of 1,500 tons in half that time. One cannot blame the Administration for purchasing American locomotives. It is a matter for sympathy rather than for criticism, in so far as the Administration is concerned, for engines were urgently required and the Railways had to purchase where they were available.

The Government's Attitude.

But the matter is very regrettable, particularly so at the present moment when there is a tremendous demand for coal at the Union's ports and at Delagoa. The importance of developing the Union's coal trade is appreciated by the Government, but the question of transport is, and always has been, an exceedingly difficult one, and it is hardly to be expected that anything approaching ideal conditions will obtain for some years to come. The Minister of Railways (Sir Thomas Watt) informed the House of Assembly at Capetown the other day that the quantity of coal carried in 1919 was 160,000 tons more than in 1918. The possibilities of the coal trade were enormous, he said. The world was crying out for coal. Colliery owners were able and willing to produce it in increasing quantities, but unfortunately the scarcity of engines and trucks had prevented the Railway Administration from dealing adequately with this trade. It was, however, alive to the necessity for providing additional facilities, in the interests of shipping and of the industrial development of South Africa, which largely depended upon a cheap and regular supply of coal.

It is only to be hoped that the present breakdown of new locomotives in a railway system which has always been hampered by truck and locomotive shortage for the development of the coal trade will not have an unduly adverse influence on the good name of the South African collieries.

European and South American Customers.

In addition to the development of an export trade with Marseilles and Rotterdam, referred to in our recent issues, we now observe that an important contract for Transvaal coal has been entered into between one of the leading collieries of the country and Sweden. Moreover, we learn that the Argentine is in the market for South African coal on a large scale, provided that adequate guarantees of delivery are forthcoming. All this is very satisfactory, but it would be infinitely more satisfactory if a large number of the new locomotives were not on the sick list and if there was ability to guarantee a steady delivery of coal to the coast for shipping which is anxious to develop the Union's overseas coal trade if only orders can be complied with.

Output Figures.

The latest statistics as to outputs of coal and coal by-products in the Union—the April figures supplied by the Government Department of Mines—are summarised as under:

PROVINCE.	No. of Collieries Producing	Mined.	Total Coal Sold.	Total Value realised at Pit's Mouth.	Value per ton at Pit's Mouth.
		Tons.	Tons.	£	s. d.
Springs-Brakpan Area (Trans.)	5	59,829	46,862	12,937	5 6.26
Middelburg Area. ,,	19	516,528	439,355	126,764	5 9.25
Other Areas. ,,	11	95,152	81,307	20,726	5 1.18
Transvaal …	35	671,509	567,524	160,427	5 7.84
Cape …	5	553	505	318	12 7.13
Orange Free State …	4	81,276	74,190	21,135	5 8.37
Natal …	27	360,609	270,710	159,790	11 9.66
Union of South Africa …	71	1,113,947	912,929	341,670	—

Coal converted into by-products, 7,642 tons; by-products produced, coke 1,802 tons, tar 3,146 gallons, sulphate of ammonia 227 tons.

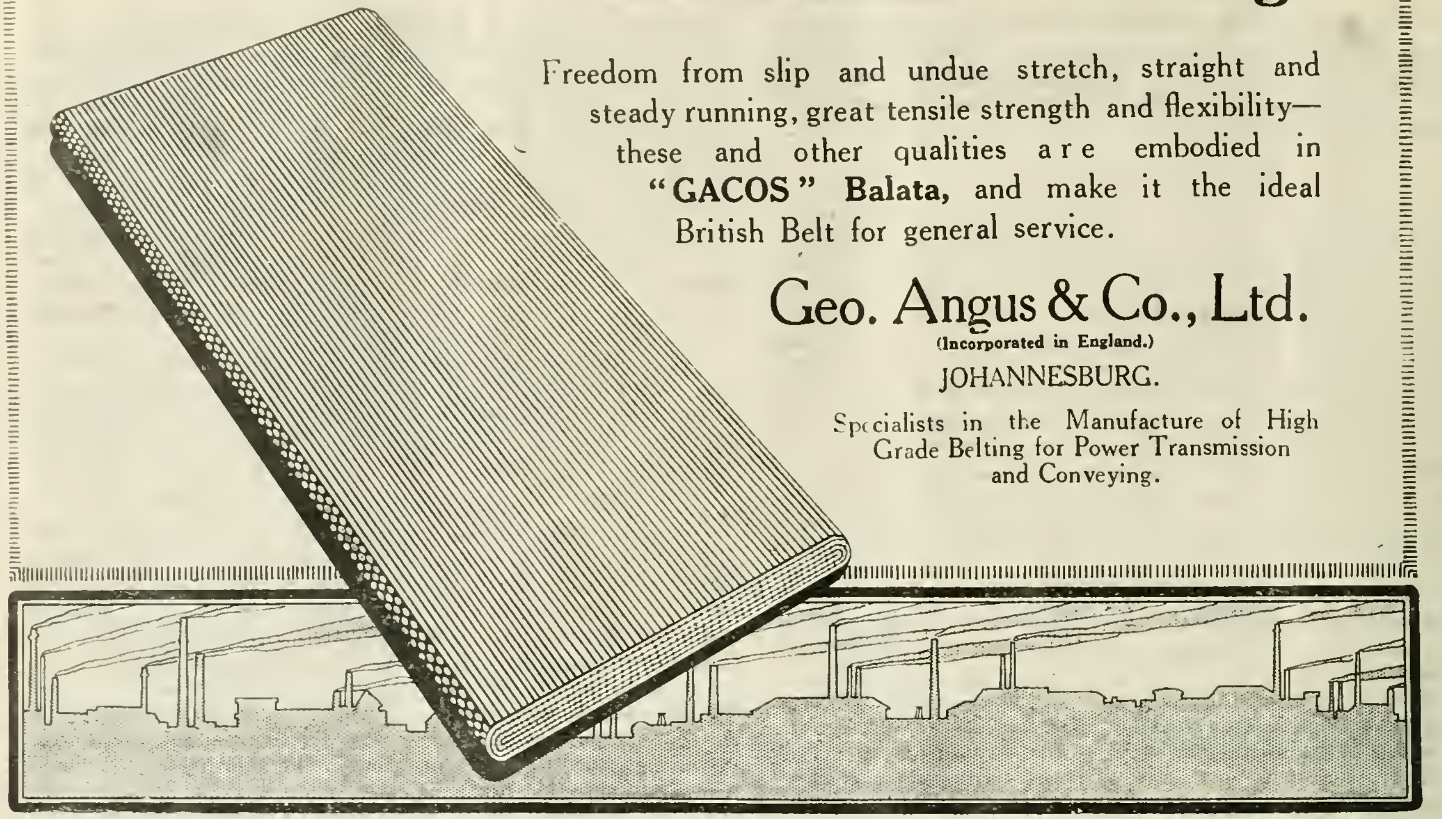
C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368**.

TUTORIAL RESULTS:

46 Survey Certificates to date, including three Honours Certificates
Other coaches have obtained one Survey Pass to date.
Last three Managers' Examinations we lead with passes.
We established a percentage record of passes, January, 1920, Managers' Examination.
We lead with Overseers Passes, 1918 and 1919, combined.
WRITE FOR PARTICULARS AND CLASS TIME TABLE.

"GACOS" Balata Belting.



Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

WM. HODGSON & SONS

(Weighing Machinists) **LIMITED,**

MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,

WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—

Geo. GRADOCK & Coy. (S.A.) Ltd.

Box 316. Tel Add. "Ropes" Tel. 539.

MICA IN THE EASTERN TRANSVAAL.

Valuable Memoir by Mr. A. L. Hall on the Economic Geology of Our Mica Occurrences.

From the Geological Survey we have received an important memoir by Mr. A. L. Hall, M.A., F.G.S., on the mica occurrences of the Eastern Transvaal. In his introduction Mr. Hall writes:—

" One outstanding feature in the recent economic history of South Africa has been a notable increase in those mining and industrial activities which depend on base metals and non-metallic deposits. During the recent international struggle the economic fabric of the world has been severely strained and South Africa, though far removed from the principal theatres of this struggle, has not escaped its effects. Some of the established sources of raw material based upon mineral deposits can no longer be relied upon to the same extent as before and many fresh requirements have arisen. While in other parts of the world the activities under peace conditions have been more or less disorganised, the favourable geographical position of South Africa in the Great War has not been the least important factor in enabling active search for further base metal or non-metallic deposits to proceed hand-in-hand with their industrial application. With the return to normal conditions regarding export trade and shipping facilities, South Africa can with confidence expect to move steadily further along the road of industrial advance. The following pages are intended to give a connected account of the geology of the mica occurrences in the eastern parts of the Transvaal Province, with special reference to their economic aspects. Though this mineral has been recorded from other parts of the Union, such discoveries have so far proved of scientific interest only. The field work was carried out at intervals during 1911, 1918 and 1919, altogether some five months being spent in the mica districts. On the subject of the present memoir little published information is available. Though the occurrence of mica in the Low Country was already known prior to the South African War, the earliest reference—as far as the writer is aware—is found in ' The Geology of the Districts about Haenertsburg, Leydsdorp and the Murchison Range,' by E. T. Mellor, contained in the Annual Report of the Geological Survey of the Transvaal for 1906. In Memoir No. 6 of the Geological Survey of the Union of South Africa, by A. L. Hall, published in 1912 and entitled ' The Geology of the Murchison Range and District,' a short account is given of the mica fields. At that time, when the northern railway line terminated at Pietersburg, the mica mines were some 120 miles from railhead and severely handicapped in consequence; the opening of the Selati Railway, traversing the mica belt, has now removed the great difficulties of transport. In 1915 attention was called to the mica deposits in an article published in the *South African Mining Journal* by W. T. Hallimond, entitled ' The Olifants River Mica Belt.' More recently the subject of South African mica was dealt with in a paper contributed to the *S.A. Journal of Industries* during 1918 by Dr. P. A. Wagner. In this the economic aspects are discussed, and a useful summary is included of deposits outside the Union."

Under the concluding chapter heading " Status and Outlook of the Olifants River Mica Fields," Mr. Hall writes:

> The present position and future possibilities of the South African Mica Industry depend upon a variety of factors, some of which are difficult to estimate, but as a result of recent events the economic foundation of many industries has undergone a profound change; this has also been felt in the mica industry, the general prospects of which have never stood higher than to-day. It is worth while, therefore, to consider what indications exist, which point to this improvement as likely to become a permanent feature of the industry in the near future.
>
> When it began to be realised that the Murchison Range Goldfields—which lie close to the Olifants River Mica Fields—did not realise the hopes centred in them at the time of their discovery, mineral developments in the Low Country were regarded as doubtful propositions, an impression which has undoubtedly also affected the mica industry to some extent. The advent of the Selati railway in 1912 has removed what was probably the greatest obstacle to this struggling industry, and since 1914, and specially during the last two years, the outlook of the market for South African mica has distinctly improved.
>
> The preceding account of the geology of the mica fields leads to the confident conclusion that large quantities of commercial muscovite are available, more specially of medium and smaller sized grades, while the quantities of waste mica ready for grinding are already very large. There is every reason to believe that the present output could be substantially increased and maintained, provided larger contracts are forthcoming; of this there are many healthy indications to-day. The past output, in fact, is no criterion of what the Olifants River Fields could prodace, a statement which anyone will bear out who knows them from actual observation.
>
> Accurate information as to the cost of production is not available, but just before the opening of the Selati railway in 1912 the working costs of the Leydsdorp Mica Mines varied from £75 to £95 per ton of trimmed mica delivered in London. It should be pointed out that these figures relate to a time when the nearest railway station was 120 mils distant.
>
> After quantity available, a second factor of supreme importance is quality. What has been said on this question in earlier portions of this chapter points to the conclusion that Olifants River mica compares favourably with that from any other field—not excluding the most important item, *i.e.*, electrical insulating capacity.
>
> Briefly, the short-lived activity of certain producers in the past was not due to poor quality or quantity of mica produced, but to difficulties of market disposal. It is only when larger contracts can be expected that capital necessary for more systematic development to ensure sustained outputs can be attracted.
>
> No doubt the pockety nature of mica deposits implies much dead mining, while furthermore only a fraction of the " run of mica " material reaches a saleable condition, but this applies to mica mining all the world over.
>
> The next question concerns the all important problem of market disposal, the available markets being either in South Africa or overseas.
>
> As regards local consumption of South African mica, it is doubtful if this exceeds 2 tons per annum at present. In any case it is too small to furnish the basis of an industry on a large scale. Large sheets of best quality can always be easily disposed of to electrical firms and power stations in the industrial centres of the Union. Much of this material has been supplied in the past by imports from England, but by taking out the largest sheets from their output large producers leave themselves with only medium and smaller grades. To supplant the total imports of foreign by South African mica, when the former only amounted during 1918 to £263 in value, cannot be encouraging to the industry.
>
> The South African requirements of mica goods are comparatively small, and there seems not much hope of the successful establishment of an export trade in locally manufactured electrical appliances or micanite, in view of the keen competition with American or European manufacturers long used to operations on a large scale. These remarks may be illustrated, *e.g.*, by the difference in prices between imported micanite and that manufactured locally.
>
> It has also to be remembered that all mica and mica products entering the Union from the United Kingdom are free of duty.* The imposition of a substantial protective tariff to assist a young local industry would therefore appear worthy of serious consideration.
>
> From the preceding remarks the first conclusion emerges that the further development of the Olifants River Fields cannot solely rely on disposal of muscovite in South Africa for local consumption, whether direct or for the purposes of an export trade in manufactured electrical appliances or micanite.
>
> One is thus led to the question of an export trade in trimmed mica, and here the outlook has distinctly improved during the last two years. Competition with well-established foreign sources still continues, and will no doubt continue, but the marked advances in all round values, growing sphere of industrial application of mica, more careful grading, satisfactory results of electrical tests, etc., have much improved the position, as shown by the steady increasing number of inquiries from all parts of the world, e.g., Japan, America, Australia, Paris, London, etc. These inquiries are by no means confined to sheets of exceptional sizes, and are distinctly encouraging as showing that direct connections with overseas consumers are far more satisfactory than trying to dispose of local mica on the London market.†
>
> Compared with an annual world consumption of about 7,000 tons, the present supplies available from the Olifants River Fields are an almost negligible quantity, and before the hopeful signs which now illuminate the dimmed horizon of the local mica industry can bear solid fruit the confidence of the world's market must be earned by

---

* Mica, other than electrical, is, however, subject to a duty of 20 per cent. if imported from elsewhere than from the United States.

† In support of this statement it may be mentioned, for example, that in June, 1919, an American firm offered 17s. per lb. c.i.f. New York for clear, Madras cut muscovite 2½ inches x 2½ inches, and 30s. per lb. for similar mica 12 square inches in size. Another American firm, interested in gramophone manufacture, suggests an annual requirement of 25 tons of 2-inch x 4-inch sheets, clear or stained. A firm in New Zealand asks for assorted grades of clear and stained Belgal cut, Nos. 4 to 1, at prices equivalent to nearly £124 for 116lbs. of trimmed sheets of various sizes.

local producers being able to maintain continuous outputs of standard quality, etc., leading to stocks sufficiently large to carry out larger contracts.

The last remarks indicate the necessity of mining operations on a larger scale, getting rid of the notion—still surviving with some producers—that the main effort should be to find large nests of mica cutting up into higher grades, and making sustained efforts to accumulate large reserves of well graded ordinary "run of mica" sizes.

Last, but by no means least, is the problem of utilising waste mica for the manufacture of mica powder for lubricants, etc. Several very promising inquiries have recently come from Japan, and should encourage the hope that someone may come forward with enough initiative to put the local manufacture of ground mica to a practical test. Could this material be economically produced at a centrally situated mill there is little doubt that a ready market for some, at least, of its applications would arise in South Africa, besides the good chance of an export trade. In this connection the reader may refer to Section 7 of this chapter.

In the course of his official duties the writer has been struck with the ignorance which is sometimes displayed regarding the very existence of the local mica fields, an experience from which the technical literature is not altogether excluded. In this direction something is being done to give South Africa her due, but there is room for much improvement, *e.g.*, the preparation of small representative samples for distribution through a Government Department or otherwise to British and Foreign Trades Commissioners, Consular Agents, Scientific Institutions, and so forth.

It thus appears that the outlook for the South African Mica Industry embraces the following desiderata :—

(1) Concentration not merely on the comparatively small requirements of South Africa, but to a far greater extent on supplying foreign markets.

(2) Practical steps to decide the possibility or otherwise of economically producing ground mica from the large and growing reserves of waste but by no means useless material.

(3) Further development—but on a more comprehensive scale—of known deposits, and more thorough prospecting for new ones, with the object of accumulating the large stocks of well-prepared grades requisite to carry out contracts to extra South African consumers.

(4) Greater combination among local producers, so as to improve output, methods of mining, and grading, while not forgetting serious efforts in propaganda by means of samples and printed matter, in which direction the attempts hitherto made have been an almost vanishing quantity.

(5) Disposal of mica direct from producer to consumer rather than relying on, *e.g.*, the London market.

SUMMARY AND CONCLUSION.

The outstanding results of the foregoing discussions may be summarised as follows :—

1. In the Olifants River Fields, mica occurs in commercial deposits of muscovite in many granite pegmatites intrusive in the Older Granite, Gneiss and Schists of the Low Country.

2. The mica does not lie in reef form, but forms pockety deposits, scattered irregularly through coarse pegmatite; hence it leads to very uncertain mining.

3. The size of the nests and pockets of muscovite is subject to extreme variation, and may in exceptional cases be measured by cubic yards, but commonly they are very much smaller.

4. While much of the crystals is in poor physical condition, larger nests cut up into trimmed sheets of excellent quality—comparing favourably with the best foreign sheets.

5. The colour is usually a very pale delicate olive green; sometimes a pale brownish to nearly colourless variety is also found.

6. The nature of the deposit necessitates much dead work in development. The latter proceeds almost entirely by open cast workings, and all of these are still in the zone of weathering.

7. Owing to the uncertain nature of the mica deposits, to transport difficulties, to the somewhat isolated position of the fields, to competition with old established supplies from older countries, and to other reasons, the development of these fields has for many years been slow or intermittent, and the output low and uncertain.

8. The opening of the Selati railway in 1912 has much improved the position from the point of transport, and in consequence the outlook has latetrly much improved, specially during the last two years.

In general sympathy with the keen interest devoted in the last few years to base metal and non-metallic deposits in the Union the local mica fields have attracted renewed attention, though their potentialities have not yet received the recognition which undoubtedly is their due.

Though it is not likely that the Olifants River Fields will ever contribute their share to the world's mica output on a scale comparable to the vast resources of asbestos and corundum awaiting further exploitation in the Northern Transvaal, there is good ground for believing that a substantial increase of output could be secured provided more systematic development on a larger scale can be undertaken.

The preceding conclusion rests on the sound geological basis—discussed in these pages—of the two primary factors being satisfied, *i.e.*, quantity and quality available.

These alone are not all, however, but must be supported by economic working and marketing conditions.

Great difficulty was experienced in the past in disposing of South African sheet mica at all, let alone at figures bearing an economic relationship to cost of production.

The gradual rise in the value of electrical mica, its increasing number of industrial applications, and the steady accumulating practical proofs of its sound electrical quality are building up for the South African mica industry a healthier foundation than it has had at any previous stage of its history.

The consumption of mica within the Union is too small—whether of the local or the imported article—to furnish an outlet for the Olifants River Fields, and the same conclusion applies to a possible South African industry of mica goods.

The policy of local producers should be in the first place to develop their deposits with the major object of accumulating sufficient stocks for building up and maintaining an export trade in that which the mica quarries really can produce in satisfactory quantity and quality, viz., medium and smaller size grades, and to take the few large nests as lucky windfalls by the way. In the second place, practical trials should be undertaken to see whether South Africa cannot also do what some other mica producing countries have successfully done, viz., utilise the large accumulations of what is still called "waste" mica by converting it locally into ground mica.

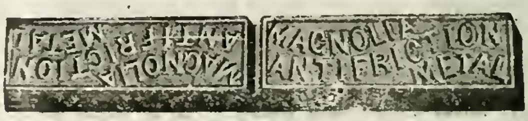
Efforts to leave the beaten tracks, and broaden the basis of tentative experiments in building up an industry do not always meet with sympathy, and require the courage of a man's convictions, yet the present outlook of the Olifants River Mica Fields justifies the belief that in due course the old saying will once more come true :—

Ex Africa Semper Aliquid Novi!

A Maximum Production Machine Tool.

Maximum production is the final object of a new design of heavy high-speed lathe recently constructed by a leading firm of British engineers. The bed of the machine is 20 feet long, and will take work up to 10 feet between centres. With special high-speed steel tools this machine will remove over 2,500lbs. of forged steel per hour. It is driven by a 60 horse-power variable speed electric motor, and has 18-inch centres. Many similar types of heavy machine tool will be exhibited at the Machine Tool and Engineering Exhibition which is to be held in London during September, 1920.

FURNACES
For all purposes.
50% Saving in Fuel.
COAL, COKE, OIL, GAS, WOOD, etc.
THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.
TRADE MARK


HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making BEARINGS smooth as glass and keeping them COOL under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd. Johannesburg
Bulawayo and Salisbury.

HOW TO OBVIATE CLOSING DOWN MINES.

Points from the Report of the Low Grade Mines Committee.

The report of the Low Grade Mines Commission, which is dated May 5, is signed by Messrs. A. Crawford, J. Forrester Brown and B. Pohl, Mr. J. G. van der Horst, who signed the interim report, having resigned on February 11.

Dealing with the steps to be taken to obviate the closing down of the low grade mines on the Rand, the report states, *inter alia* :—

The premium on gold has so altered the situation that for the moment there is little danger of a large number of mines closing down. The disappearance, or even a considerable reduction, of the premium would place the industry in the same or a worse position than that in which it found itself during the first half of 1919, and it will therefore be as well to consider the question of relief measures as if the present gold premium did not exist. A useful purpose will also be served in showing what may be considered to be unnecessary and undesirable burdens by the removal of which one of the most prolific of the Union's sources of wealth and productivity may be strengthened and prolonged.

Subsidy.—One of the methods of relieving the situation of the low grade mines suggested to this Commission by witnesses was that of a subsidy to be granted by the State. The general argument in favour of this expedient is that since the State derives very large indirect benefits from the existence of any low grade mine, it can well afford to spend substantial amounts to prevent these benefits coming to an end by the closing down of such a mine. If, for example, Mr. Collie's estimate is correct, that the State derives indirect revenue, not including railway revenue, to the extent of 3s. per ton from the average gold mine, it would appear that a sacrifice of anything less than that amount would still leave a surplus, and that the State could well afford to spend, say, 2s. 6d. per ton in order to save the 3s., in addition to avoiding the social and other difficulties incidental to the closing down of a mine.

The Commission is not in favour of such subsidies, unless the circumstances are exceptional. The gold mining industry is not peculiar to contributing indirectly to the coffers of the State. Every other branch of productivity, which puts money into circulation, has the same result. If the State were to support a struggling gold mine it would find it difficult to resist the demand to support a struggling copper mine, or boot factory, or even a farm. It is true the gold mine once closed down may remain closed for ever, and that thus its potentialities of production may be lost for good and all, but this hardly seems a sufficient reason for differentiation. In theoretical economics it is regarded as unsound to support unpayable industries, since this means the diversion of funds which might be applied to enterprises of a profitable, and therefore probably more permanent, nature. The Select Committee of 1918 also considered this question and expressed a similar opinion.

In certain circumstances it may become imperative for the State to intervene, and in such a case it might be necessary for it to render financial assistance. There is, for example, the case of the East Rand Proprietary Mines, one of the typical low grade mines. Large quantities of water, amounting to more than three million gallons per day, enter this mine, and it is only by continuous pumping on this extremely large scale that the water can be kept down. The cost of pumping is about £100,000 per annum, and is in itself a heavy burden on a struggling mine. If pumping were to stop the inflow of water would rapidly fill up the mine, and would, after reaching a certain level, overflow through a zone of natural fissures into the adjoining mines to the west.

The sole way of preventing such a calamity would be to arrange, with or without the assistance of the State, that pumping operations should be continued on the East Rand Proprietary Mines, for this mine is the only one equipped with plant which is adequate for the purpose. The cost of pumping, after the cessation of general mining work on this mine, would be greatly increased, since it would involve the maintenance of certain shafts and other operations, as well as superintendence, the cost of which is not now debited to pumping.

Under these circumstances it might be in the best interests of the State to subsidise the East Rand Proprietary Mines to continue ordinary mining, a less expensive form of providing for continued pumping, than to close down the mine and confine work to pumping only. If the mines, whose existence is threatened by the cessation of pumping, were earning good profits, it could reasonably be expected of them that they should finance the operations themselves and make such arrangements with the East Rand Proprietary Mines as may be to their mutual benefit. These mines are, however, all low-grade mines and, although some contribution towards the cost may, perhaps, be levied from them, there seems to be little hope of any effective steps being taken, without substantial financial aid from the State, that is when gold has returned nearer to its normal value.

CLAIM LICENCES.

A form of relief, which was advocated by various witnesses, and which the Commission supports, is the remission of the State's share of claim licences, for although it amounts to only 1 penny per ton milled, and does not constitute a serious burden, there is practically nothing to be said in its favour, except as a penalty for not working. The Commission is of opinion that there should be full remission of the State's share of claim licences, when adequate work is done, irrespective of the fact whether the mine is making profits or not, and that this principle should apply both to diggers and to prospectnig claims.

RAILWAY RATES.

Evidence was advanced by several witnesses to the effect that excessive railway rates are charged on goods, such as steel and coal, which are used by the mines in larger quantities than by other consumers, and that such heavy charges constitute a special tax on the mines. The Commission was not in a position to investigate the question whether rates *per se* are too high, but it is clear from the evidence, given on behalf of the South African Railways and Harbours, that the policy adopted by the Railways is to make profits on the paying lines balance the losses on the non-paying lines, and to charge such rates as the traffic is estimated to be able to bear. The Commission is of opinion that this policy results to a large extent in penalising those sections of the community which are served by the paying lines for the benefit of those on the non-paying lines. These latter lines are necessary for the development of the country and must, in their earlier stages, necessarily be non-paying, but it seems to the Commission that the burden of meeting

P.O. Box 3807.
ROCKWOOD PRESSED STEEL UNIONS
H. ALERS HANKEY - - - Sole Agent.

DRILL STEEL
CROWN RAZOR
For Difficult Drilling.
TROJAN
For Ordinary Work.
Can furnish all grades of Carbon and Alloy Steels.
Write us for Prices.
Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.
Cable Address: TURLEY, PHILADELPHIA.
CODES USED:- A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

the loss should be shouldered by the general community, and not alone by certain sections of it, that is to say, that the general revenue should make up the deficit. If it is feared that this procedure would result in extravagance on the part of the Railway Administration, on these non-paying sections, the deficit may at all events be divided between general revenue and railway revenue. With regard to co-operation between employers and employees, there is no doubt in the minds of the Commissioners as to the value of such from the standpoints of efficiency, improved relationship, elimination of unnecessary stoppage of work, and the creation of a feeling of better contentment all round.

NATIVES FROM NORTH OF LATITUDE 22.

The Commission heard a large number of witnesses on the suggested modification of the restrictions against the importation of natives from north of Latitude 22 Deg. South. Generally, the witnesses expressed themselves in favour of the modification. The representatives of the South African Mine Workers' Union stated that they had a mandate from their General Council against the use of tropical labour. They admitted, however, that no reasons were advanced by their Council, and that the matter was not fully discussed. The impression gathered by the Commissioners is that the mortality argument is the real cause of the opposition of the South African Mine Workers' Union, and it appears from the general trend of their evidence that if this objection is successfully overcome the Union would give the Commission's recommendation its support. Two witnesses, however, objected to any such increase in the native labour supply for the gold mines—or indeed for any industries—on the ground that by restricting the supply more Europeans would be employed on unskilled work. These witnesses advocate the employment of white labour for unskilled work underground on a basis leaving the present economy of the industry undisturbed. This theory is not a new one, and has been before the country for many years. It involves a radical change in the basis of industry, and has not been approved of by people or Parliament of South Africa; indeed, the Select Committee on European Employment and Labour conditions appointed by the House of Assembly in 1913, in reporting on the possibility of employing Europeans as a substitute for natives in the mines, said: "Your Committee could not recommend any attempt to bring about a change which would involve a vast economic and social upheaval, and probably fail in its object owing to the difficulty of finding substitutes in this country or elsewhere for the labour force now employed." The Commission endorse this view, and feel that whatever may be the basis of labour or of industry, or of society generally in the remote future, the existing basis of labour in South Africa, in which natives and Europeans are complementary to each other, must be accepted for the purposes of the report. Obviously the suggestion, if adopted, would involve an experiment too dangerous to be applied to the present serious position. If the Government should decide that the employment of natives from beyond the boundaries of the Union is inadvisable on grounds of policy, that fact would necessarily alter the whole economic position. Until, however, there is such a change of policy, the only reason that can be advanced against the renewed employment of tropical natives is that based on the health aspect. As the medical evidence so strongly advises that there is nothing now to be feared on this score, we cannot come to any other conclusion than that the embargo should be removed. Our recommendation is dependent on the condition that the native labour obtainable in the Union should be used to the greatest advantage by utilising more fully the time spent underground by them, and by the extension of the piece-work principle wherever practicable. There is room for improvement in this respect, nor should there be any relaxation in the efforts to obtain the largest possible number of native labourers from Union sources. There should be no encouragement to any policy of displacing them in favour of natives from beyond our borders, nor should the introduction of these natives be used as a means of endangering the earnings of the British South African natives. It is estimated that about 40,000 natives are required to make up the present shortage on the gold mines alone. The report does not recommend that such a large number should be recruited at once from north of latitude 22 deg. south. The medical evidence is to the effect that the mortality question is one that is beyond the experimental stage, but that, as a matter of common prudence, it is desirable not to bring in too large a number until confirmation of their opinion has been obtained by actual proof. They suggest at least 5,000 as a suitable number for the purpose of arriving at a definite conclusion. If after the initial number has spent a period of six to nine months on the Witwatersrand their mortality were found to be as satisfactorily low as anticipated, the employment of larger numbers should be permitted. Although the increase of 5,000 natives on the present labour force would not be a very substantial help, it would not be long before a decision could be made whether permission for a more adequate number could be given safely. At the present moment there is such a shortage of native labour on some of the low-grade mines that even the premium on gold now obtainable is barely sufficient to balance the resulting large increase in cost per ton. Obviously the position is dangerous, and every effort should be made to improve the supply of native labour.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

THE LABOUR CONFERENCE: REPORT BY SECRETARY FOR MINES.

Mr. H. Warington Smyth, who was the Union Government's delegate to the International Labour Conference in Washington, has issued an interesting and informative report of the proceedings, in the course of which he says:—

Considerable dissatisfaction was expressed at the preponderance of European representatives, especially by the representatives of Latin America. The desirability in the interests of the Labour Bureau itself and of the future influence of the League of Nations, of broadening the basis of representation on the governing body was freely pointed out by myself in the Government Delegates Committee meeting and by the other South African delegates, and other members in the Conference. A resolution expressing dissatisfaction with the present representation was proposed by the South African employers' delegates, and was carried by 44 votes to 39. Both the employers' and workers' delegates from South Africa have also tabled protests on the methods of election of representatives in their respective groups.

In his general observations Mr. Smyth remarks:—

The failure of the United States to take any official part in the Conference seemed to have a stimulating effect on the delegates who had come so far to take, as they hoped, a live part in the first practical constructive work of the League of Nations. There was a feeling that the attitude of the opponents of the League, which seemed to imperil its very existence, constituted a call to the delegates of the Labour Conference to shew that the League is a reality, that its future is the one hope for a stricken world, and that it is capable of making a beginning of a practical and effective nature.

The members of the Convention worked with a spirit of dogged good humour, a readiness to try to learn and understand conditions prevailing in the countries of their brother delegates, but, above all, with a very decided determination to reach concrete results, and not to separate until they had done so.

It was perhaps partly due to this determination and to the forethought and study which delegates from the older industrial countries had been able, notwithstanding the somewhat short time available, to give to the problems of the Conference that misunderstandings occasionally arose among delegates who had not had the same opportunities. For instance, some of the Latin American delegates, owing perhaps to inexperience, at times found a certain difficulty in following the methods of procedure and the exact meaning and object of the proceedings. These were, however, soon surmounted.

A large measure of leadership fell to Mr. George W. Barnes, the Labour member of the British War Cabinet, to whose constructive initiative the Labour Chapter of the Treaty of Paris so largely owed its genesis and its acceptance at Paris. He exerted the whole of his moderating influence in the direction of the attainment of practical ends rather than the indulgence of academic discussion.

The admirable work done by the Organising Committee and by the Permanent Secretariat under the direction of Mr. Butler in preparation of documents for the Conference also greatly assisted in focussing debate. There was, however, a remarkable spirit of compromise and toleration among all groups, and without this the results arrived at could not have been attained.

One outcome of the Conference not to be overlooked is that the delegates from South Africa have once and for all taken their seats as representatives of a nation-member of the League of Nations, free in action and opinion, and equal in voting power with the nations of the world.

From all delegations, and perhaps especially from those from Canada, Great Britain, and the Scandinavian countries, the South African representatives met with a most cordial welcome, and the increasing friendliness and interest due to a sister State working for similar industrial ideals. It was regretted by all that the representatives of our geographical neighbours, Australia and New Zealand, were unable to reach Washington in time for the Conference.

I have to thank my colleagues representing the employers and workers of South Africa for their generous co-operation, assistance, and advice throughout the proceedings. The early date at which the Conference was summoned under the Treaty made it impossible for us to have all the advantages enjoyed by delegations of States which were nearer geographically to the place of meeting, in so far as documents and information were concerned. This disadvantage will not be so apparent in future.

PERSONAL.

Mr. A. F. Lyall, of the "C.M.S.," has left on a six months' trip to England.

* * * *

Mr. D. W. Rossiter, of the Goldfields, is leaving next week on a holiday in England.

* * * *

Mr. U. P. Swinburne, Chief Inspector of Mines, is leaving next week on a holiday in England.

* * * *

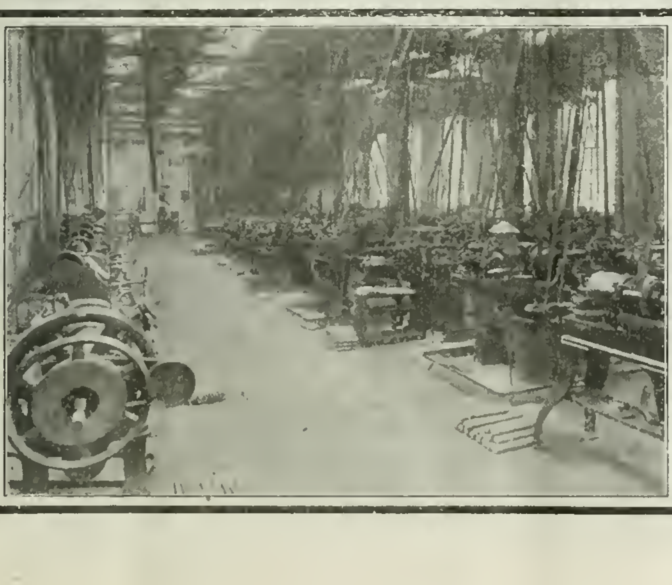
Mr. A. D. Lewis, one time circle engineer, North-Western Cape and O.F.S., will take up the acting post of Director of Irrigation when Mr. Kanthack leaves next month.

* * * *

With the deepest regret we have to place on record the sad death of Capt. Walter Albu, eldest son of Sir George Albu, Bart., which took place last Saturday after a brief illness. Capt. Albu had only just returned from North Russia, where he had served since the armistice, and where he had been badly wounded in a flying accident. He never quite recovered from this, and his death must be set down as one more tragic episode in the aftermath of war. For one so young he had a distinguished military career, first in the I.L.H. and afterwards in the Royal Air Force, his services winning him several much-coveted decorations. Beloved by all who knew him, a faithful friend and a gallant soldier, his passing will be mourned by a wide circle in this country and oversea. To his bereaved parents we tender our sincerest sympathy.

* * * *

"To the memory of the fallen" a sad and notable little function took place at the Witwatersrand Commercial Exchange last week. A tablet was unveiled to the brave men from the Exchange who had made the great sacrifice, and Col. Thackeray, with brief and appropriate words, performed the unveiling ceremony. It was entirely fitting that Col. Thackeray, who led the remnants of the South African Brigade back out of Delville Wood, and who personally knew several of those to whom the tablet was dedicated, should have officiated. The President of the Exchange, Mr. A. Y. Niven, was in the chair, and the ceremony will long remain in the memory of those who assisted at it.



PHONE 4673. BOX 3162

OSBORN'S

PATENT

"Daly" Tappets and
W. & S. Tube Mill Liner.

WRITE FOR DESCRIPTIVE BOOKLET.

Samuel Osborn (South Africa.), Ltd.,

SHEFFIELD AND JOHANNESBURG.

THE POSITION AND PROSPECTS OF THE TRIXIE, LTD.

THE manager writes: The company's holdings now amount to nine blocks of claims, each 1,500 ft. x 600 ft., situated in the Umsweswe Ward of the Hartley District, Southern Rhodesia. Taken from south to north, we have:

Alexandra Block, 10 Claims.—No. 1 shaft having caved beyond any prospect of reclaiming, a new shaft has been sunk to a depth of 60 ft. with the object of driving south under the caved area to develop payable ore which was lost through the ground falling in. No high values were expected in this shaft, and none have been obtained, the average being 33 in. of reef at 2·3 dwts. This new shaft has been dewatered and cleaned out, and sinking will be resumed to water level, and a pump installed, as this will be the most suitable source of water supply for the treatment of accumulated sands and slimes in the vicinity. Water level may be reached at 120 ft., and it is hoped to reach this early in June. Driving will then be carried on either at water level or, if above water level, to the lowest point at which the reef can be intersected. East of this new shaft is a leader which has been largely worked out but of which patches remain panning 30 dwts.; from this source some 10 tons may be obtained. Some 100 tons of payable rubble can also be obtained on the surface. There is a sands dump of some 2,000 to 3,000 tons which we are trenching, and parts of which, if not the whole, we shall find worth retreating. There are 300 tons of slimes assaying 3 dwts., which are being trenched for thorough valuation.

Victoria No. 1 Block, 10 Claims.—We have a patch of rubble from which we may expect about 100 tons of payable stuff. There is a slimes dump assaying 5 dwts. for some 150 tons. There is also a sands dump which assays 5 dwts. over 500 tons, and another sands dump of about 400 tons. We are preparing to retreat these sands and slimes at as early a date as we can obtain and instal a cyanide plant.

Victoria No. 4, 10 Claims.—Some 200 tons of payable rubble and a small quantity of payable reef in sight.

Victoria No. 2, 10 Claims.—As yet no ore worth trenching is known on this block.

Radiant Block, 10 Claims.—In all a total of 200 tons of payable ore, some of which is enormously rich, is in sight here. This block will require further prospecting. It is my object to stope out the rich ore in the immediate vicinity of the shaft before trying to prove it at depth.

Sunlight, Antiup, and Trixie Blocks, 30 Claims in all.—These have not been prospected as yet. All the above blocks will be thoroughly prospected as soon as the grass is burnt off, in August. It is 10 ft. high in places.

Oro Block, 10 Claims.—This block has had considerable work done on it, unfortunately badly outlined from the start by the previous owners. No. 1 shaft, assaying 10·20 dwts. over 14·5 inches, has been sunk to the 120 ft. level, the first 100 ft. being sunk obliquely to the dip. From this point drives going roughly E.S.E. by W.N.W. were carried in each direction. These were stopped owing to flooding during the rainy season. Since dewatering the shaft has been sunk a further 15 ft., exposing reef 30 in. wide. This has been sampled, and samples sent forward to Johannesburg, and we await verification of our own values which show it to be payable over the whole width. No. 2 shaft was sunk to 100 ft. and stopped. As you were aware the assays were 18·9 over 10 in. to the 55 ft. level, whilst the whole shaft averages 7·15 over 18·5 in. The reef started to thicken out as in No. 1 shaft at the 100 ft. level, showing 20 inches width there. No. 3 shaft has been sunk about 130 ft. to the west of No. 2; it is now down 25 ft. and assays 58·8 dwts. over 6 in., but is widening out as in the other shafts. Open cut: Fairly encouraging values were obtained near the fault, but fell off in a drive towards the east. Exposures of rubble have not been made owing to the fact that waste and reef dumps cover most likely spots. Taking the development done to date, there is about 260 ft., showing an average of 11·5 dwts. over 14·5 in. There is a large tonnage of ore developed, which I estimate is worth 57s. 6d. per ton. As our reef is in a schist formation and our working costs will not at the very outside exceed 10s. per ton, you will see that from this block alone, down to the first level only, there is a handsome profit in sight when crushing commences.

I wish to point out that every day is making things more hopeful and increasing the rate of progress. I only wish it were possible for me to point out the many features which are encouraging. Labour is cheap and plentiful. Since coming up here nearly all the work has been in the nature of preserving the shafts, dewatering, and cleaning, and preparing to go ahead more rapidly. We are not now spending money on dead work, but are opening up new and useful ore reserves, and daily increasing our tonnage at grass. We can start milling at once, as we have a very sound proposition, one of the best in the district. It is being developed under very economical and practical lines, and judicious treatment will, I am confident, enable us to show a good profit on what we have in sight, which after all is down to the first level only. Should the reefs continue to depth, and they give every indication of doing so, the life of the mine will be for a number of years. We are guided to a certain extent by our neighbours—the Alexandra, which worked for about 10 years, and the Tryme, which is still working after about 14 years. As they are only about a mile away, on each side of us, their experience should be a good guide for us. I enclose a few photos of the surface, for your inspection.—(Signed) C. H. INGLE, Manager.

Cyferbult (Transvaal) Property.—The company also holds the mining rights for ten years on 400 acres of the farm Vogelstruisfontein. This was worked in the early days as an alluvial proposition, and about £40,000 of gold was taken out. No attempt was made to crush here. Only about one-third of the area has been sluiced, and recent tests have proved that there is still a large quantity of payable ground besides thousands of tons of rubble; the low costs of handling this would make it a payable milling proposition. The company have been approached to let it out on tribute, the tributors to get 30 per cent. of the recovery, at the same time doing certain development work on the company's behalf. This arrangement will be for a short period only, as by then the directors are confident that they will be able to tackle the property themselves.

We understand that owing to the encouraging results shown by the Rhodesian property the directors are contemplating the issue of the 6,000 reserve shares. All registered shareholders (elsewhere is an advertisement calling on holders of scrip in the company to register same before 31st May, 1920) will, *pro rata* to their holding, have the option of taking these reserve shares up at 7s., for one month. After that date the directors reserve to themselves the right to allot any that may remain in the order in which the applications are received. It is a significant fact that no vendors' scrip has been offloaded on to the market, although there is nothing to stop this, under the Rhodesian Company Law, as soon as registration is through. It shows that the vendors, whoever they may be, consider that the shares are worth holding for dividends. This issue of reserve shares is made in order that the mine may be completely equipped with a full reduction plant. The capital of the company is £7,500, of which only £3,000 has been issued; the par value of the shares is 5s.

Coal from Congo.

It is reported that the Belgian Minister of Economic Affairs has decided to grant the Congo railway a licence to export 2,500 tons of coal monthly. Coal in payable quantities has been found in South Bukama in the Moers district.

Rhodesian Gold Output.

The gold output of Southern Rhodesia for April is returned at 47,000 ozs., valued at £208,934, an increase of 1,221 ozs., compared with March. Matabeleland contributed 28,299 ozs., value £128,143; Mashonaland, 18,701 ozs., value £80,791.

VIEWS ON THE PROPERTY OF THE TRIXIE GOLD MINES.

1. Manager's House and Store
2. Rich Ore at Grass.
3. A Load of Meal.
4. Surface Rubble.
5. No. 1 Shaft before Erection of Hauling Gear

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

A View on "Exchange."

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—We are informed that the high rate of discount obtaining to-day between South Africa and England is due to the fact that practically all the gold belonging to the South African banks is lying with their various branches in London; that it is most necessary to have golden sovereigns deposited in the vaults of our local bank offices to enable them to "pay on demand in sterling" the paper money now floating; that it costs the banks 27s. per £1 to import the golden sovereign; that the banks have no intention of buying sovereigns at this price, and must therefore enhance their rates with the object of assisting in the balancing of exports and imports. The chance of a balance of these items seems, at the moment, rather remote, owing to the fact that South Africa has become an export or credit country. The individual who never sees a sovereign, and who deals by cheque or draft between the various centres of his own country, cares not whether the notes he handles are represented by gold held here or in London, so long as he knows the gold is there, and held by the bank whose note issue he is handling. In view of the fact that practically all business, the world over, is carried on by means of slips of paper and book entries, is not this cry for circulation of gold fictitious, fanatic, and almost usurious? At the same time there must be a "means of exchange"—not necessarily between individuals, but between the nations of the world, and, as gold is recognised by every country, by all means let it remain the international means of exchange. To bring about such a state of affairs finance must go a little further. In the first place the circulation of gold should be immediately withdrawn throughout the world, and held by the governments of the world in conjunction with the banks. There would then be nothing but paper, silver and copper as "means of exchange." It is with the former that we are dealing. All note issues would be controlled and guaranteed by the Government of the country in which they are issued. Not only would the security of the note be the gold held by the Government, but it would be backed by the security and prosperity of the country. In this way the governments of the world would become the buyers of gold, and gradually by production and the stoppage of leakage the enormous uncovered issue of paper money to-day would be covered by its equivalent in gold. The value of one country's "paper money" in another country would be gauged by the credit or discredit of the country in which it was issued. The use of gold would be in the adjustment of large trade differences between countries. The argument of the individual is that if he has a £1 bank note he likes to feel that he can go to the bank and demand £1 sterling or "legal tender." This argument seems to be absolutely fallacious. It is an argument that suggests that some day there must be a "general settlement in gold." I presume it is impossible to make a definite statement, but surely there would not be enough gold and notes at present in circulation combined to satisfy a sudden settlement of the trade of the world. Is such an eventuality worth a moment's thought when one considers that practically all trade is conducted by debit and credit?—Yours, etc.,

"ONE WHO HAS NEITHER READ NOR STUDIED."

MODDERFONTEIN EAST CAPITAL.

To the Editor, *S.A. Mining and Engineering Journal.*

Dear Sir,—Allow us to draw your attention to an error on page 313 of your journal of May 29. You there state that the capital of this company has been decreased from £839,367 to £810,597. The capital has been increased from £839,367 to £840,597 on the 3rd inst., and from £840,597 to £843,322 on the 25th inst.

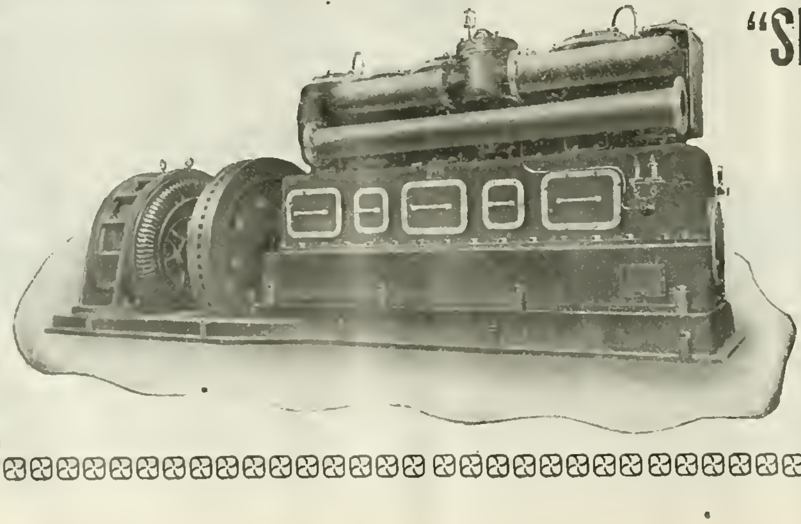
Yours faithfully,

RAND MINES, LIMITED, Secretaries.

Per R. P. Rickten.

The London Diamond Trade.

Writing in mail week, the *Financial News* diamond correspondent says: Conditions in the diamond trade show no change from those reported last week. Where rough goods are concerned the demand continues. In this connection there is only one point to be noticed—the speculator in parcels has been virtually eliminated, and the trade is once more on its own solid basis, the principal buyers being the cutting merchants on the Continent. Prices naturally are maintained, from which fact shareholders in the producing companies will be reassured that their income is still coming in on the same scale as for so many months past. The decline in the prices of the shares is due to the chaotic condition of the exchanges and sales on French and German account. Brilliants still command a good market, with, of course, the reservation that we have mentioned on previous occasions, *i.e.*, exchange complications, and a desire to deal to better advantage. Large sums of money are required to finance the trade, and existing conditions are less favourable than formerly. During this transitory state of affairs some of the continental factories are keeping their mills at work on smaller sizes than usual.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessability, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

THE WEEK IN THE SHAREMARKET.

Springs Trouble Depresses Prices—Diamonds Dull—African Oils Better.

The local sharemarket exhibited a considerably firmer and stronger tendency on Tuesday morning when business was resumed after the month-end holidays. But the firmer tone was not maintained. Kaffirs have been slightly less steady in London and the local market which is in a highly nervous state has taken fright to some extent at the strike of underground employees at the Springs Mines. There seems to be every reason for believing that the wholly unwarranted action of the Springs miners will be localised, and at the moment of writing there is believed to be every prospect of a settlement. Springs, however, weakened from 42s. 6d. to 39s. 9d., and several of the Far East Rand shares, despite the fact that dividends will be announced in a fortnight's time are slightly easier. New Modders have maintained a firm level around 67s. Modder Easts on the announcement that development is highly encouraging but that the company requires more money, have been quietly firm around 25s. in London and 22s. 6d. locally, the "Red" options being dealt in at about 1s. 6d. Diamonds have been dull, although Roberts Victors have been more active at a higher figure. Frank Smiths and Crowns are dull, and Greigs after relapsing to under ten bob are better at 13s.—15s. Pretoria Cements have come back to £5 1s. There is little doing in tin stocks, but Leeuwpoorts have improved to 19s. 3d. African Oils have been a good market up to 15s. 9d. and Sakalavas are inquired for at 7s. In regard to coal stocks, Witbanks and Glencoes are wanted at 42s. 6d. and 6s. 3d. respectively, and a new concern—Grenfell Collieries—has figured in the unlisted section of the market at 21s. Latest prices at the time of going to press are: Anglo Americans, 31s. 6d.; African Oils, 15s. 6d.; Cements, 101s.; Dagga Mines, 10s. 9d.; Frank Smiths, 12s.; Gedulds, 39s. 6d.; Leeuwpoorts, 19s. 3d.; Modder Easts, 22s. 6d.; New Modders, 67s., buyers; Springs, 40s. 6d.; Zaaiplaats, 6s. 9d.; Greig Diamonds, 13s.—15s.; Grenfell Collieries, 21s.; Sakalavas, 7s., buyers.

	Fri. 28th.	Sat. 29th.	Tues. 1st.	Wed. 2nd.	Thurs. 3rd.
Anglo-Amer. Corporation ...	34 0†	33 0	32 6*	33 0	31 6
Apex Mines	7 3†	7 3†	7 3	—	—
Bantjes Consolidateds...	2 10*	2 9*	2 9*	2 9*	2 9*
Brakpan Mines...	05 0*	50 0b	50 0*	50 0*	50 0
Breyten Collieries	8 0*	—	—	—	8 0*
Brick and Potteries	—	—	5 0*	—	5 0*
British South Africa	—	—	—	22 0†	—
Bushveld Tins	1 4	1 6†	1 4	1 3*	1 3*
Cassel Coals	35 0†	30 0*	35 0†	35 0†	35 0†
City and Suburbans	5 6*	5 0*	5 0*	6 0	5 6*
City Deeps	44 0*	45 0*	44 0*	47 6*	48 9†
Clydesdale Collieries	—	—	22 0*	—	23 0*
Consolidated Langlaagtes ...	15 0*	17 6	16 0*	16 0*	16 0*
Consolidated Main Reefs... ...	11 0*	11 0*	11 3*	11 3*	11 0
Consonidated Mines Selection	21 0*	22 6	—	—	—
Coronation Freeholds	1 4*	1 5*	1 6†	1 3	1 6†
Coronation Syndicates	12 6†	—	—	—	—
Crown Diamonds	8 9	9 0†	8 0	7 6*	7 9*
Crown Mines	—	—	50 0†	—	50 0†
Consolidated Diamonds	—	40 0	38 6*	38 9	37 6
Daggafontein Mines	11 0	10 6	10 6*	10 6	10 6
Do. Options (4 years)	0 2*	—	—	—	—
East Rand Coals	2 3*	2 3*	2 3*	2 3*	2 3*
East Rand Deeps...	0 9*	—	1 0†	- 0†	—
East Rand Minings	—		—	15 0†	—
East Rand Proprietary	7 0	7 3*	6 3*	6 6*	—
Eastern Golds	1 0*	1 0*	1 0*	1 0*	1 0*
Frank Smith Diamonds	11 10½	11 9*	12 1½	12 1½	12 3
Geduld Proprietary	37 6	38 6*	38 0*	38 6*	39 0*
Glencairns	—	—	—	—	1 3*
Glencoe Collieries	6 6†	—	6 3*	—	6 3*
Government Areas	85 0	86 3	85 9	86 0	85 0*
Hume Pipes	22 0*	23 0*	23 3*	23 0*	23 3*
Jhb. Board of Executors	37 6*	37 6*	37 6*	37 6*	37 6*
Jupiters	2 6	2 3*	2 9*	2 9*	2 0*
Klerksdorp Proprietary	2 3*	2 3a	2 3*	2 0*	2 0*
Knight Centrals	4 0†	4 0†	—	—	3 6
Knight Deeps	—		4 9*	4 9*	—
Kaalfonteins	0 5*	—	0 2*	0 5	0 6†
Lace Proprietary	9 0*	—	8 6*	8 3*	8 6*
Leeuwpoort Tins ...	18 0*	17 6	17 6	18 3	18 6*
Lydenburg Farms	8 4	8 1*	8 0*	8 1*	8 1*
Middelvlei Estates	1 6		1 6*	1 3	—
Modder B.'s ...	121 0a	126 0	127 0a	125 0a	122 0*
Modder Deeps.	47 3	46 9	46 9	46 9	47 0
Modder Easts ...	22 9	22 9*	22 7*	22 6	22 7½
Do. Options (3 years) ...	1 2*	1 4*	1 6	1 1	1 2*
Do. Options (4 years) ...	6 7*	6 7*	6 7	6 4*	6 5
Modder Wests	18 3†	—	18 3*	18 3†	18 0†
New States	25 0a	25 0*	25 0*	25 6*	25 6a
Natal Navigation Collieries	23 6†	—			
National Banks ...		280 0†	270 0	—	—
New Boksburgs	1 3a	1 6	—	—	1 6*
New Eland Diamonds ...			50 0*	52 6*	—
New Era Consolidated ...	—	—	—	7 9*	8 0*
New Geduld Deeps ...	1 9		1 9*	1 9	1 9*
New Kleinfonteins	7 4*	7 0*	7 3*	7 3	7 0
New Modderfonteins	67 9	68 3	67 9*	67 0*	67 0*
New Primrose	2 0*	2 0*	—	—	—
Nourse Mines ...	5 0*	10 0†	—	—	—
Pretoria Cements	104 0a	106 0	105 0*	102 6	100 0*
Princess Estates		0 6*	0 6	—	0 6*
Rand Collieries	—	3 6†	—	—	—
Rand Nucleus	1 5*	1 4*	1 4*	1 3*	1 3*
Rand Selection Corp ration...	70 0*	70 0*	—	—	—
Randfontein Deeps	6 3†	—	—	6 6†	—
Randfontein Estates ...	16 0*	—	16 0*	15 9*	16 0
Roberts Victors	10 0*	10 0*	11 6*	15 0	14 9
Rooibergs	8 9*	8 9*	8 9	8 3*	8 0
Ryan Nigels	3 3*	—	—	3 3	—
Rouxvilles	—	20 0†	16 6†	15 0*	15 0*
Shebas...	2 0†	—	—	2 0†	2 0†
South African Lands	5 0†	4 6*	5 0†	4 6	5 0†
Springs Mines	42 9	42 6	42 6†	39 9	41 0
Sub-Nigels	14 6	14 6	14 6*	14 6*	14 6*
South Van Ryns	7 0	7 0*	7 6*	7 9*	7 9*
South African Townships ...	10 0*	10 3	10 0*	10 6*	10 6*
South African Alkali... ...	—	20 0†	19 0*	19 3*	—
Transvaal G.M. Estates ...	9 6*	9 3*	9 3*	9 0*	9 6*
Transvaal Silvers	—	47 0*	48 6†	42 6*	43 0*
Do. Options ...	—	23 9	22 6*	25 0	24 0*
Union 5 per cent.	£98*	£98½*	£98½*	£99	£98½
Van Ryn Deeps	82 0*	83 0*	83 0*	84 0†	81 0*
Village Deeps	—	10 0*	10 0*	9 6*	10 0*
Van Dyks	—	2 6†	2 6†	2 6†	2 6†
Victory Monarch	60 0†	—	—	50 0†	40 0*
West Springs	15 6*	15 9*	15 6*	15 6	15 3*
Do. Options	2 3*	2 3	2 1*	2 0*	2 3
West Rand Consolidated ...	—	2 6*	2 6*	2 6*	2 6*
Western Rand Estates ...	4 0†	—	3 0*	—	—
Witbank Collieries	43 0*	—	42 6*	42 6*	
Witwatersrands ...	—	15 0†	—	—	—
Witwatersrand Deeps...	8 6*	—	8 0	8 0*	8 6*
Wolhuters	3 0	3 0*	3 0*	3 0*	3 0*
Zaaiplaats Tins ...	6 7	6 7	6 7*	6 6*	6 10*

*Buyers. †Sellers. aOdd lots bEx London.

Monteleo Diamonds, Ltd.

(Registered in O.F.S.)

Declaration of Dividend No. 2.

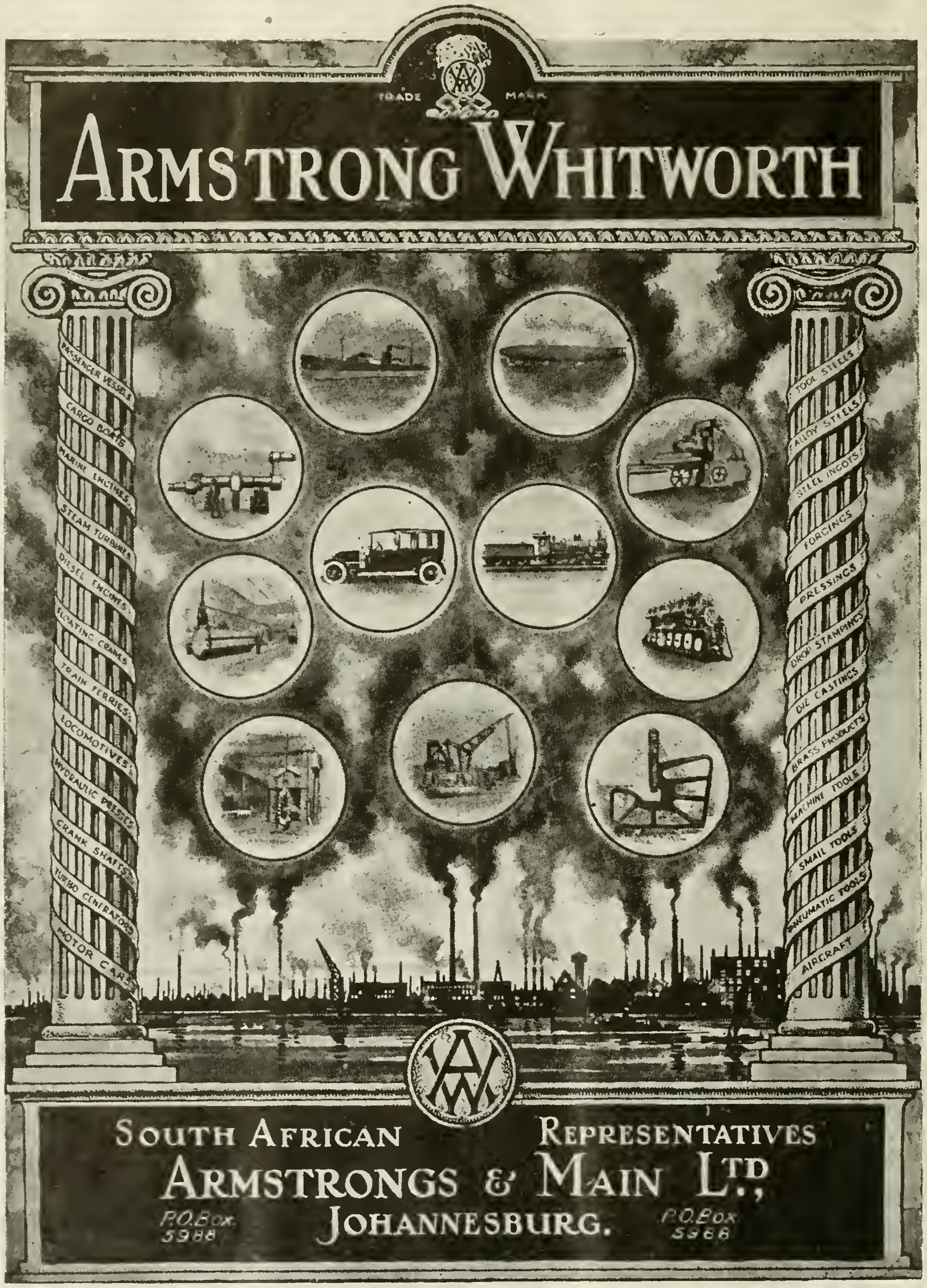
NOTICE IS HEREBY GIVEN that a Dividend of Ten per cent. (10 per cent.) has been declared for the period ending 30th June, 1920, payable to shareholders registered in the books of the Company on the 30th of June, 1920.

The Transfer Register of the Company will be closed from the 1st to the 10th July, 1920, both days inclusive.

Warrants in payment of this dividend will be posted as early as possible after the 1st August, 1920

By Order of the Board.

SAV. B. DOWLING, Secretary.
Monteleo Diamonds, Limited
Johannesburg, 2nd June, 1920


TRADE MARK
ARMSTRONG WHITWORTH
PASSENGER VESSELS
CARGO BOATS
MARINE ENGINES
STEAM TURBINES
DIESEL ENGINES
FLOATING CRANES
TRAIN FERRIES
LOCOMOTIVES
HYDRAULIC PRESSES
CRANK SHAFTS
TURBO GENERATORS
MOTOR CARS
TOOL STEELS
ALLOY STEELS
STEEL INGOTS
FORGINGS
PRESSINGS
DROP STAMPINGS
DIE CASTINGS
BRASS PRODUCTS
MACHINE TOOLS
SMALL TOOLS
PNEUMATIC TOOLS
AIRCRAFT
AW
SOUTH AFRICAN REPRESENTATIVES
ARMSTRONGS & MAIN LTD.,
P.O. Box 5988
JOHANNESBURG.
P.O. Box 5988

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Rate of Exchange—Banks and Produce—Second-Hand Dealers all Agog—Iron and Steel—The Way of Things.

The feature of the week has been the discussion on the report of the low grade mines and the colour bar.

The Premier must be congratulated in bringing forward his Native Bill at this very opportune time, because it will ventilate the subject in all its bearings. It is a thing that matters, as it requries no fanciful imagination to see the ever-increasing numbers of natives coming along to take the place of the white man, unless he is up and doing—and doing well to keep ahead. After all, the native is a great asset providing he is put into the right grooves, and in a measure kept there.

THE RATE OF EXCHANGE.

The commercial world is starving for the Government's announcement as to what is likely to be done in reference to our bank exchange rates between here and London. The buying rate is £8½ and selling ditto £7½, which was a thing never dreamt of. They came upon us like a thunder-clap, and it is said they are likely to go higher. According to the shipping offices it is hanging up South African products at the Coast, therefore some homeward ships are leaving here with only partial freight, creating uncertainty and losses in every direction. The Chairman of the Spring Mines, at the annual meeting, said that there was a probable solution of the exchange problem in the near future, and in a subsequent statement said that he hoped the exchange would be announced in a few days. Here is what the Standard Bank officially reports in connection with placing away £200,000 for an exchange reserve. The export of gold coin was prohibited by law, but the premium realisable abroad nevertheless induced a large leakage. The result had been a drain on the specie holdings of the banks, rendering it necessary for them to purchase sovereigns for import to South Africa to maintain their cash holdings. These purchases could now be made only on payment of a heavy premium. It was in order to have a fund available towards meeting the cost of such purchases that the provision of the £200,000 was made.

THE BANKS AND THE PRODUCE MARKET.

The latest Reuter says, at the last sales in London, that merino wool has receded 45 per cent. below the price obtained in February, which is chiefly attributable to the curtailment of financial facilities. In South Africa the value of wool has decreased about 35 per cent. in the same period. As regards hides and skins, in Johannesburg, which is one of the principal centres in South Africa, on account of its dead meat market, there has been a nasty drop: for example, Cape skins are 6s. now, as compared with 15s. in April; sheep skins 10d., as against 1s. 10d. lb.; goat skins 1s. 8d., instead of 4s. 2d. lb.; wet hides 11d., as compared with 1s. 4½d. lb.; dry ditto 11d., as against 1s. 9d. in April. This is chiefly attributable to the bank's action some time ago, when they suddenly stopped advancing money both from the country storekeepers to the Coast and then from Port Elizabeth and East London to London. The first stoppages were made for the country districts, because of a host of speculators being in the market, and some had 80 per cent. advances, which all at once became a liability to the banks instead of a marginable asset. As regards overseas, a lot of South African produce was held up in the Thames and docks in London for two or three months. During that time much of the goods, especially wet hides, deteriorated, therefore the banks on that side had trouble; then came the heavy exchange rates. And, to make matters worse, wool and skins kept decreasing in values throughout the world. As regards Johannesburg speculators, at one time they paid more than the price ruling in London, simply anticipating higher values there. Obviously if wool comes down the price of cloth must recede, which in the end means cheaper living. Such a contingency would be quickly reflected throughout all circles of trade, as competition is now exceedingly keen and spirited.

SECOND-HAND DEALERS ALL AGOG.

The second-hand dealers are anxiously looking forward to the closing down of the poorer mines, as their yards are all bare of anything like assorted stocks. This will be a very speculative affair, as some of the mines have been in existence over 25 years, therefore the machinery must be worn and somewhat obsolete. But it so happens

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:

KELLY, BURNIE & CO.

Box 5260. The "KELCO" People. Phone 4333.

Corner Polly and Albert Streets, Johannesburg.

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

that any machinery and structural steel work are so high and so difficult to obtain from overseas that prices will obviously not be on the cheap side, but problematical—hence the chance of making a little fortune or losing one. This will suit the temper of the Johannesburg dealers. Most of the mines are expected to put their material and machinery up to competition, as that will be the best and recognised way of liquidating a company. Business in the second-hand yards is exceptionally quiet, because of the shortage of stock, as previously remarked

TIMBER AND BUILDING MATERIALS.

There has been a further rise in deals, and these are from the new stocks arriving from the Baltic, which is disappointing, as it was anticipated that these would be cheaper, if ever so little. The fact is that labour is higher in Norway and Sweden, and the original costs are more at the timber mills, as well as freight, through the dearness and difficulty in obtaining coal. A timber merchant was asked if this meant a slackening off of the building trade. He replied so far the increased costs had not affected the building activity. There may be other reasons, he said, but when once people make up their mind to build, particularly houses for themselves, they usually go ahead. Deals are 2s. 3d. to 2s. 6d. per foot, according to quality and length; floorings 10½d. to 11½d., ceilings 7¾d., scantling 2s. 2d. to 2s. 3d.; roofing iron, 24 gauge, 1s. 8d. to 1s. 10d. per foot; turps. are 22s. 6d per gallon when obtainable—a distributing house is selling small bottles of half pints at 3s., which is a record. We may get relief from America shortly, but if the negotiations now in progress in Europe to open trading with Russia are successful, it will quickly put things on a different footing. Linseed oil had a drop in London early in May, but immediately recovered, and is now firm at 14s. for 7lb. tins, and four Imp. gallon drum 70s. each. White lead market is unsettled. Genuine in oil, 100lb. kegs, 110s.; red ditto, in 50lb. kegs, 1s. lb. Finest oxide, in oils, 90s. per 100lbs. Putty, 9d. lb., in bladders. Ready mixed paints and roof paints, 1s. 6d. lb., up to and including 70lb. tins. Common glue, 1s. 3d. lb. Gold Leaf, English, plain, 4s. 6d. book. Sash tools, No. 4 2s., No. 7 4s., and No. 10 7s. 9d. each. There are a number of painters unemployed, as much work is hung up awaiting the Rent Bill details.

IRON AND STEEL.

Prices are the same as last week, with very little doing, although on the turn of the month a few indents appeared, much as usual in the commercial exchange, from outside sources. Steel plates are up 2s. 6d., and second-hand plates are £35 to £40 per ton. Four-pound hammers are said to be selling at 3¾d. per lb. in Johannesburg, as compared with 6d. in England. Imported mild steel is 39s. 6d. per 100lbs. All Transvaal quotations for iron and steel remain the same. Business has a waiting tendency, and little likelihood of anything being better until Parliament has made up its mind about the poorer grade mines, the Profiteering Bills, and so forth.

THE WAY OF THINGS.

According to Reuter there is a reported setback in the motor trade in London, owing to the tightness of money. Hence a number of orders have been cancelled. There has been a discovery of coal on Crown Lands in the Waterberg district. These will not be dealt with without the sanction of Parliament. At a meeting the Chairman said that the gold mining industry was going through a very trying and anxious period, but he thought the worst was over, as the employes were settling down after the disturbing and restless influence when on active service. He also thought stores had reached their maximum, and that a means would be found to relieve the industry of the heavy bank exchange. To this may be added that the employers and employes are working well together with the honest endeavour of keeping as many of the poorer mines going as possible. The economic move as regards clothing will undoubtedly catch on, but the food question is still a serious one, as the world's shortage of wheat will take a lot of negotiating. The writer attended the municipal market during the week, and found an acute shortage of forage. The explanation was our drought for over six months, and also the drought in the Cape until recently. There was an auction sale on Tuesday, which was not good, as a house in a southern suburb only realised £870, whereas it was put down to realise quite £1,000. Electric lamps are advancing in price, but other electrical goods remain about the same, with less demand in town, but quite fair orders come from the country. The cold snap has improved the demand for warmer clothing and drapery.

H.M. Senior Trade Commissioner in South Africa, Mr. W. G. Wickham, left Johannesburg on June 3rd for an official tour in Rhodesia. He will visit Bulawayo, Salisbury, Beira, and Livingstone and return to Johannesburg at the end of June.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P O Box 1017. Telegrams. "THAINE."

INVESTIGATE THE EFFICIENCY
OF
"BRITANNIA"
JACK HAMMERS

THEY WILL SAVE YOU
50 % on your Steel Bill,
40 % in Air Consumption.
Your Repair Account will almost disappear.

Let me give you a demonstration.
"CLIMAX SAM."

THE CLIMAX ROCK DRILL AND ENGINEERING WORKS, LTD.,
SOUTHERN LIFE BUILDINGS,
JOHANNESBURG.

Phone 2190. Box 2303.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II., JUNE 12, 1920. [No. 1498.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 339

Topics of the Week:

Another Contribution to the Exchange and Currency Discussion 341

Improved Outlook at Modder B. 343

The Modder East's Outlook 345

A Year's Mining in Rhodesia 356

Solving the Rand's White Labour Problems 347

The "Long-rig" Jackhammer Mount 349

Associated Scientific and Technical Societies of South Africa 350

The May Output: Group Returns 351

The May Output in Detail 353

Joint Works Committees on the Mines 355

The Week in the Sharemarket 357

A New Occurrence of Vanadinite in the Marico District, Transvaal 358

Correspondence and Discussion: "The African Oil Corporation, Ltd."; "Far East Rand Geology"; "The Weight of the Carat" 359

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 361

Company Meetings: Witwatersrand; Consolidated Langlaagte; Langlaagte Estate; Government Areas; New Unified; New Primrose; Van Ryn Deep; Randfontein Central; Randfontein Estates; New Boksburg 363

Notes and News.

The Barnato Meetings.

A full report of the proceedings at the annual meetings of the Barnato group of companies will be found elsewhere in this issue. Mr. John Munro presided at all of these meetings and reviewed the year in each case in the fullest detail. The speeches at the State Mines, Randfontein, and Van Ryn Deep meetings are of especial interest.

* * * *

Springs Mines.

The reef has been intersected in the No. 3 shaft of the Springs Mines property at about the depth expected. The values were, however, unpayable. This has not come as much of a surprise or disappointment to the management, as the disclosures in the south haulage prepared them for comparatively poor values at the point where the shaft intersected the ore body. The company has sustained severe loss through the recent unwarranted strike, but it is unofficially anticipated that it will re-enter the dividend list this month. In well-informed circles a distribution of about 7½ per cent. is predicted.

* * * *

South-West Africa.

Much interest is being evinced in the mineral prospects of the South-West African Protectorate, quite apart from the diamond fields of that territory. We hear of recent extensive discoveries of cassiterite and other base metals, and it is perhaps significant that a prominent engineer associated with one of the leading mining houses has just left for the locality in which several important discoveries have recently been made.

* * * *

Medals for Bravery.

A story of bravery in face of appalling risk and in perilous conditions was recounted on Wednesday at the City and Suburban by Mr. D. Christopherson, C.B.E., vice-president of the Transvaal Chamber of Mines. The facts regarding the fall of rock at the City and Suburban and the rescue work of Mr. Adams have already been given in these columns. Associated with Mr. Adams and showing great devotion and courage in assisting him were Messrs. F. Bridger, R. T. Warren (foreman timberman), G. B. des Fountains (shift boss), A. Sequira, A. Pastance, G. P. van der Merwe (miners), and D. J. Nott (shaft carpenter). "Those are the plain facts of the case, and a refutation of the cynic's view that the human mind is all one big thought of selfishness and self-aggrandisement," said Mr. Christopherson, addressing a gathering of co-workers of the gallant party in the City and Suburban Mine Recreation Hall, the occasion being the presentation to Mr. Adams of an inscribed gold watch and the Chamber of Mines Bravery Medal, and of the Bravery Medal to Messrs. Des Fountains, Bridger, Van der Merwe and Sequira. Messrs. Warren, Pastance and Nott be publicly thanked on behalf of the Chamber of Mines. He thanked the whole party for the example they had set, not only to the employees of the mines on these fields, but to the community as a whole, by their bravery and unselfishness in carrying out the work they did. Mr. Percy Sherwell, manager of the mine, introduced the speaker, others present being Messrs. P. Cazalet, H. C. Boyd (local chairman of the company), Perkins (assistant manager, City Deep), and F. C. W. Ingle (sectional manager, City and Suburban).

* * * *

Central Mining Profits.

A cable has been received from London giving the following information regarding the operations of the Central Mining and Investment Corporation, Ltd., for the year 1919: Profit, £810,000; added to general reserve fund, £200,000; income tax reserve, £150,000; pensions fund, £15,000; carried forward, £187,000. A final dividend of 8s. per share, free of income tax, has been declared, making the total dividends for the year 18s. per share free of tax.

Nigel Gold Mining.

Mr. John S. Sheldrick, one of the London agents of the Nigel Gold Mining Company, once more circularises the European shareholders in connection with the agitation of the "Shareholders' Protection Association, Ltd.," of Johannesburg. The aim of the association has been declared on previous occasions to break down the group system of mine control. But the Nigel is under no control. The directors have worked independently for the benefit of the shareholders, and the latter have had no fault to find. The board, it will be remembered, was prohibited by the Treasury from raising additional working capital, so that any allegation as to lack of enterprise falls to the ground. During the year an exchange of claims was effected with the Sub Nigel, as under the scheme the area that the Nigel would acquire could be more economically worked. In addition a plan has now been arranged for the development of the unproved deep-level claims, by arrangement with the Sub Nigel. In the course of sinking operations the adjoining Southern Van Ryn encountered two seams of coal, and made a proposal to the Nigel Company to open them up on the latter's ground. An arrangement has now been made on a royalty basis.

* * * *

Lonely Reef.

The report of the Lonely Reef G.M. Company for 1919 states that as the result of the past year's development, the ore reserves at 31st December, 1919, show a considerable increase in tonnage, but a small decrease in value, the reserves at the end of 1919 being estimated at 199,739 tons of a value of 23·54 dwts., as compared with 176,097 tons of a value of 24·1 dwts. on 31st December, 1918. The gold contents of these reserves, taken at the standard rate of 84s. per fine ounce, are worth £1,000,000, the ore reserves at 1st December last being of higher value than at any previous time in the history of the mine. Milling operations have been carried on continuously during the year. The total tonnage crushed was 55,420, an increase of 1,100 tons over the previous year, and the yield was 71,799 ozs., an increase of 22,239 ozs. The average recovery per ton crushed was 25·91 dwts. The company has derived considerable benefit from the gold premium which it has obtained on its realisations during the second half of the year. The working costs are high. Including maintenance and administration expenses in London and Rhodesia, they amounted to £125,885. equivalent to 45s. 5d. per ton crushed. Royalty paid to the British South Africa Company amounted to £25,524, which brings the total cost up to 54s. 7d. per ton crushed. The profit and loss account shows a realised profit of £192,455, which with £29,595 brought forward makes £222,450. This has been dealt with as follows: Dividends Nos. 18, 19 and 20 (representing a total of 50 per cent.), less tax, £94,852; bonus of 25 per cent., less tax, payable 31st May, £47,426; British and Rhodesian income tax (less amounts recovered) and additional remuneration payable to directors on dividends declared, £8,316; appropriated for depreciation, £13,326; carried forward, £58,129.

* * * *

Namaqua Copper.

Owing to the high prices of coke and freight, as well as to railway transport difficulties, the Namaqua Copper Company has found it impossible to resume smelting operations, which, it may be remembered, were discontinued in May, 1918. How much longer this condition of things will last no one can tell, but it is satisfactory to learn from the anual report that Mr. William Rich, the managing director, is at present in South Africa, and is giving personal attention to the company's affairs. It is to be hoped, therefore, that at no distant date the conditions will improve to such an extent as will justify the directors in re-starting the plant. Meantime, a considerable amount of prospecting and development work is being done, and the satisfactory results achieved are reflected in a substantially-improved ore reserve position. At December 31 last the reserves consisted of 50,004 tons of crude ore, containing 3,383·96 tons of fine copper, being an increase of 12,349 tons of crude ore and of 1,194·50 tons of fine copper—equal to 33 per cent. copper, and some 28,000 tons of mineral containing reserves at the end of the preceding year. In addition, there are 18,000 tons of tailings and slimes containing about 6 per cent. copper, and some 28,000 tons of mineral containing a little over 3 per cent. copper. The whole of the plant received considerable attention during the year, and the greater part of it was thoroughly overhauled, so that it will be in a good condition for re-starting at short notice when required. As was to be expected in the circumstances, the financial results show a loss on the year's operations of £5,050, leaving the profit and loss account with a net debit balance of £4,839.

* * * *

Rhodesia Exploration.

Mr. H. G. Latilla, presiding at the second ordinary meeting of the Rhodesia Exploration Company in mail week, referred to the steady inquiry for land which still continued. In conjunction with the Transvaal and Rhodesian Estates, Ltd., the company had purchased a further area of land in the Tuli district approximating to 118,000 acres. This land adjoined the Elwes block owned jointly with that company, and with that block made a unique ranching area of over 276,000 acres, bounded on the north and east by the ranches of the Chartered and Leibigs companies. In the neighbouring Gwanda district the company also owned a further area of approximately 330,000 acres of land eminently suitable for ranching, a portion of which was traversed by the railway. The company's mining interests in Rhodesia remained the same as at the date of the last report, and consisted of 337 claims. Negotiations had taken place with the Globe and Phoenix Gold Mining Company with regard to their acquiring the company's 50 per cent. interest in the "John Bull" and "Phoenix West Parallel" blocks of claims, together with five other blocks of claims owned entirely by the company, the whole of the seven blocks in question adjoining the mining properties of the Globe and Phoenix Company. The directors had been advised throughout these negotiations that such claims were of considerable value. Prospecting had been done during the year upon Maraisdrift, down to a depth of 50 ft. upon a reef which averaged good payable values from its whole distance over 42 in. stoping width. It would at present be premature definitely to correlate this body with the known existing series, but the development might be regarded as satisfactory.

* * * *

Gold Producers' Association.

The half-yearly meeting of the Australian Gold Producers' Association was held in Melbourne recently, when the report and balance sheet were adopted. According to Press telegrams, the report stated that the half-year's operations had been highly satisfactory. The enhanced price received for gold had enabled many of the mining companies and small producers to continue working and producing gold. In June of last year the embargo on the export of gold from the United States was removed, and shortly afterwards the African producers obtained a free market for their gold. The inevitable effect was a fall in the price offering by Eastern buyers in anticipation of the heavy supplies that would be forthcoming from these sources later in the year. However, the increasing demand for gold brought about a recovery in price, and towards the end of the half-year the gold producers were able to obtain much better terms. The net price realised on the gold sold in the last half-year averaged £4 14s. 5·89d. per standard ounce, or £5 3s. 0·96d. per fine ounce. The average price obtained for gold during the whole of the company's operations, from March to December, 1919, was £4 15s. 11·62d. per standard ounce, equal to £5 4s. 8·31d. per fine ounce. The total mint value of gold exported and sold to 31st December was £3,011,423, and the total amount realised was £3,710,845. The difference of £699,422 represented the gross premium obtained after deducting the cost of realisation and administration expenses, including reserves. The board distributed the balance of £627,370 to members. The gold in transit, and carried over to 31st December, and a portion of the current production had already been disposed of at satisfactory prices. Part of it realised the highest price yet obtained. The membership of the association continued to expand, and there were at present 360 shareholders on the register. The records showed that the association had dealt with approximately 90 per cent. of the total gold output of Australia during the period of its existence.

TOPICS OF THE WEEK.

ANOTHER CONTRIBUTION TO THE EXCHANGE AND CURRENCY DISCUSSION

Important contributions to the discussion on the exchange and currency question have recently appeared in these columns from such authorities as Mr. Samuel Evans, Mr. H. Strakosch, Mr. J. W. Jagger, and Mr. E. C. Reynolds; and we welcome the opportunity extended to us by the Committee of the Stock Exchange to hear the views of Mr. D. C. Greig on the subject. As Mr. Matheson, who presided in the absence of Mr. Manisty, the chairman, pointed out, Mr. Greig is well known not only as a prominent member of the Stock Exchange but also as a keen student of all questions dealing with finance. Mr. Matheson said that Mr. Greig had recently returned from Capetown, whither he had been summoned to give evidence before the Committee appointed by the Government to inquire into the questions of currency and exchange, preliminary to the framing of a Bill giving effect to the Government's intentions in regard to these matters; and in his evidence Mr. Greig propounded a scheme for the solution of the present difficulty in regard to exchange. That scheme formed the subject matter of his address. Mr. Matheson added: "Briefly, the position we have to face to-day is that the Banks are not able adequately to finance the export trade of South Africa except by the imposition of a rate of exchange ruinous to the exporter, and it is of the utmost importance that means should be speedily devised to effect a satisfactory solution of this problem. To those of us who are old-fashioned enough to insist on a strict adherence to well-known and well-established principles in dealing with questions of economics, it is essential that any departure from these principles must be justified by reasons of urgency and expediency, but we are living in abnormal times and the conditions in South Africa are so abnormal that we may perhaps be forgiven if we depart from a too rigid application of these principles. The idea of formulating a scheme of the kind proposed is to enable the Banks to transfer their accumulated balances in London to South Africa which would certainly tide us over a period of at least 12 to 18 months, by which time we hope the world will have reverted to more or less normal conditions, at any rate as regards exchange and currency. All that we can insist upon in the adoption of any scheme is that we are not taking any undue risks." Mr. Greig's address lasted an hour, and has been reported at length in the daily press. It must suffice therefore to repeat his salient points here. Having restated the problem as it affects South Africa, Mr. Greig proceeded to show that the truest and most complete parallel was furnished by Egypt. When four years ago, owing to the 500 per cent. increase in the price of cotton, the banks were unable to finance the export trade, they took the advice of Sir Paul Harvey, Financial Adviser to the Egyptian Government, and accepted short-dated Imperial Treasury bills in lieu of gold. They were immediately able to negotiate all bills on London, and the exchange rate had been practically only commission, one-eighth to one-sixteenth under par. It had been contended by some economists that the result of the use of these Treasury bills was an expansion of Egypt's note issues to such an extent that it affected the cost of living in Egypt. Sir Paul Harvey, in his latest report, however, stated that the expansion of the note issue had had no effect whatever on the cost of living. The *Economist* had now come round to the opinion that the solution adopted had been the best from Egypt's point of view. Here it may be noted that Mr. H. Newhouse has joined issue with Mr. Greig in the daily papers on this important point of the effect on the cost of living in Egypt. Mr. Greig went on to say that if the Egyptian system were applied here the Government by enactment would authorise our banks to accept Imperial Treasury bills in lieu of gold, and following that they would have to declare note issues of the South African banks legal tender. Once the banks were in a position to utilise their notes as legal tender instantly our discount rates would fall to par and our bills on London would then become subject only to the bankers' discount. The modifications he suggested to the Egyptian system to make it conform to local conditions were as follow: The Government now considered a security of 40 per cent. gold plus 60 per cent. South African Treasury bills as sufficient backing for the note issues. If Imperial Treasury bills were substituted for that 40 per cent. gold the banks would not be entitled to the interest on those bills, but it would be a fair claim by the Government, gold itself being non-interest bearing. That would be an entirely new source of revenue. Immediately the note issues were declared inconvertible the gold leakage would stop. He chose short-dated Imperial Treasury bills instead of Union bills because the Imperial Government had no interest in the expansion of South African note issues. In conclusion, Mr. Greig urged that the adoption of his proposal meant that we definitely linked ourselves with sterling, that we definitely expressed our confidence in the Empire, that sooner or later sterling would go back to a gold parity, and that automatically the banks of South Africa would go back to the gold basis. Mr. Greig's scheme, with others, is now engaging the serious attention of the Select Committee; and whatever may be its fate at their hands, he is to be congratulated on a thoughtful and earnest attempt to get over the biggest difficulty in the way of the progress of South Africa to-day.

The T. & D. B. Company's Enterprise.

Owing to the growth of manufacturing industries in South Africa the demand for sulphuric acid, which is the basic chemical in so many industries, has greatly increased. De Beers Explosive Works at Somerset East have decided to manufacture superphosphates in addition to explosives. Kynock's Works at Umbogintwini, Natal; The Natal Ammonium Co., The New S.A. Carbide and By-Products Co., the Modderfontein Works and the Delmore Works are or will be large consumers. So far the demand has been partly met in South Africa by re-working the dumps of gold mines carrying pyrite, particularly on the Black Reef series, in the Transvaal, on the Rand and Sabie districts. These deposits are limited. Producing mines also yield supplies. The only known massive pyrite deposits so far discovered occur in the Upington and Prieska districts. Most of these are, unfortunately, so far from the railway that the capital cost of putting in branch lines or the cost of cartage is a very serious drawback. At the station, Lutz Puts, 40 miles beyond Upington, within a few hundred yards of the railway, very large deposits, carrying a percentage of copper, exist. These are now being developed by the Transvaal and Delagoa Bay Investment Company, under the technical direction of Mr. E. M. Walton. Next year these deposits will be in a position to supply all the possible requirements of the Union at a price that should be able to compete with imported sulphur even at the ports.

* * * *

U.K. Mining.

The report of the Committee on the condition and possibilities of non-ferrous mining in the United Kingdom, on which Sir Lionel Phillips served before his visit to South Africa in October, 1919, recommends centralisation in one organisation of departmental duties relating to non-ferrous mining. The Committee urges that this organisation should immediately undertake geological statistical work. It also recommends the adoption of the recommendations of the Commission of 1914 relative to the health and safety of workers on mines, and the compulsory deposit with the Department of Mines of the surface and underground plans of all mines on the lines practised in South Africa, in connection with which Sir Lionel Phillips and Major Trevor gave most valuable evidence. The Committee further suggests that the above mentioned organisation should undertake "certain functions which in the Dominions are regarded as falling within the scope of the Government, although never so regarded in the United Kingdom," for instance, advice regarding development, also improvement of existing methods. A most important recommendation is that the Government should take powers analogous to those in the Dominions and extend financial assistance to mines to enable them to tide over difficulties and to undertake approved exploration and development.

THE BRITISH FLOTTMANN DRILL COMPANY, LIMITED

(SUCCESSORS TO THE FLOTTMANN ENG. CO., LTD.),

ALLENSBANK WORKS, CARDIFF.

ARE IN A POSITION TO SUPPLY ALL TYPES OF

FLOTTMANN ROCK DRILLS AND SPARES.

South African Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
C/o STURROCK & CO.,
BARSDORF'S BUILDINGS,
Phones 2596-7.
Telegrams: "DELTA."

IMPROVED OUTLOOK AT MODDER B.

The Corner Turned—Better Results Anticipated—Progress of the New Shafts—Recent Returns at a Glance.

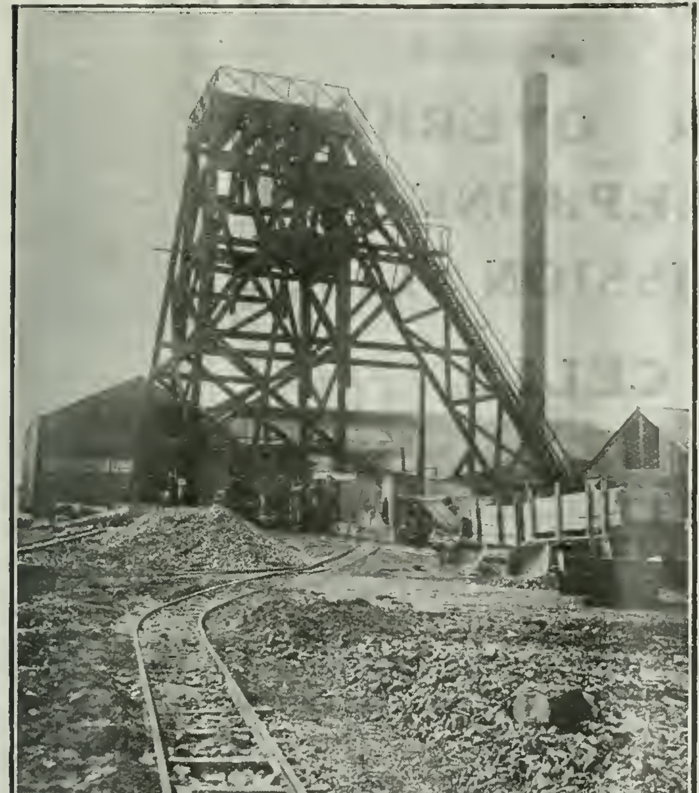
The Modderfontein B mine has recently been passing through a very critical stage in its career. In common with all other Witwatersrand propositions, the company has felt the adverse influence of rising costs and a declining price for gold. But over and above these there have been other factors in connection with the Modderfontein B which have made for decreased profits.

Ore Reserves.

The ore reserve position is satisfactory. At the end of last year the pay tonnage blocked out in the mine was 3,215,100 tons of an average assay value of 9 dwts. over 63 inches. Compared with the previous year end this is a decrease in amount of 163,000 tons and in value of ·2 dwt.—scarcely a very material factor when the aggregate total is considered.

The Lay-out of the Property.

The trouble at the Modderfontein B has not been in contraction of ore reserves, but in the lay-out of the mine, which has not been conducive to the obtaining of best results from the claims. The opinion is strongly held that the two deep shafts which are now being sunk should have been commissioned long ago, for the area is a large one, 1,467 claims, and the old shafts are quite insufficient for such a claim-holding. As is generally known, these shafts are designed to exploit the south-western and south-eastern sections of the property. The south-eastern had reached a depth of 1,100 feet at the end of April. Construction work was completed in August last. It is anticipated that the reef will be intersected at a depth of between 1,700 and 1,800 feet. In view of the large tonnages that will have to be dealt with from the deeper western side of the mine, and of the great distance of this section both from the old central and the new south-eastern shafts, it was some time ago decided to sink an additional south-west shaft. Its diameter is 18 feet, and its depth about 1,700 feet. This second shaft has now reached a depth of about 200 feet.



The South-Eastern Shaft of the Modderfontein B. Gold Mines.

The New Shafts.

When these shafts are down to the reef the points of attack will be greatly increased, and there will be ability greatly to augment the tonnage. That, of course, is looking some considerable distance ahead, but in the meantime it is interesting and encouraging to learn that the mine has now turned the corner, and that results from now onwards are likely to improve.

Recent Results.

Last month the company earned a profit of £49,185, which is approximately £5,500 more than was earned in the previous month, and a note accompanying the output explains that the improved results were due to higher mine grade, which is definitely expected to be fully maintained, and probably improved. Tonnage output is still below capacity of plant, but a new compressor will be in operation during the current month, and will greatly increase facilities for breaking and handling rock. Results obtained in the previous five months were:

		Revenue.		Cost.	Profit.	
1919.	Tons.	£	s.	s.	£	s.
Nov. ...	50,000	114,706	45/11	24/10	52,028	20/10
Dec. ...	51,000	102,387	40/2	25/6	39,017	15/4
1920.						
Jan. ...	56,000	140,132	50/5	23/8	74,826	26/9
Feb. ...	43,500	111,919	51/5	29/8	47,397	21/9
March .	52,500	115,522	44/-	25/8	48,223	18/4
April ..	50,000	111,118	44/5	27/-	43,621	17/5

PERSONAL.

Captain E. D. A. Herbert, A.M.I.Mech.E., A.M.I.E.E., of the English Electric Company, Ltd., who has been on a visit to Johannesburg, left this week for England.

* * * *

At the meeting of the Board of Directors of the Witwatersrand Deep, Ltd., held on the 2nd instant, Mr. A. E. O'Flaherty was unanimously re-elected Chairman for the ensuing year.

* * * *

Amongst recent arrivals on the Rand is Mr. E. Fraser Jones, of the British Flottman Drill Co., Ltd., of Cardiff, the successors to the Flottman Engineering Co., Ltd. Mr. Jones is visiting South Africa in order to further the business of this well-known rock drill, which is manufactured by his principals, and which is in extensive use in the coal, diamond and gold mines in South Africa. Mr. Jones's headquarters at present are with the firm of Sturrock & Co., Barsdorf's Buildings, Marshall Street.

* * * *

With deep regret we have to record the death of Mr. Alexander McNamara, late of Kempton Park, Transvaal, at the age of 48 years. Deceased came to this country from the United States over twenty years ago. He was actively connected with boring operations in all parts of South Africa, and has been connected for many years with Messrs. Fraser & Chalmers. On Tuesday Mr. McNamara was in perfectly sound health, and at the time was in the district of Middelburg, Transvaal, engaged in supervising the operation of boring in connection with the business of Messrs. McNamara Shot Drills, Ltd., of which concern he was the managing director. Just before noon on that day he was taken suddenly ill and died within half an hour, before medical aid could be procured. On examination, it was discovered that a blood vessel had burst, causing hæmorrhage of the brain. He will be greatly missed by all who knew him, and we offer our sincerest sympathy to his family and to his colleagues of Messrs. Fraser & Chalmers.

SIEMENS BROTHERS

& CO., LIMITED

MANUFACTURERS OF—

CABLES AND WIRES

For Electric Light and Power, Telephone, Telegraph and Signalling Purposes.

TELEGRAPHS AND TELEPHONES

Manual and Automatic.

ELECTRIC SIGNALLING APPARATUS

Luminous Engine Room Telegraphs to suit requirements.

EQUIPMENT FOR OVERHEAD TELEGRAPH, TELEPHONE AND POWER TRANSMISSION LINES

PRIMARY CELLS

Fluid and Dry.

EBONITE

&c. &c. &c.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemene, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE MODDER EAST'S OUTLOOK.

Position of Holders of Options —Initial Crushing Results —Tonnage and Grade Improving— A Hopeful Prospect.

A GREAT deal of interest centres around the Modderfontein East at the present moment; it may, in fact, be said that no other individual proposition is engaging so much attention as this, the youngest of the Far East Rand producers. The property has reached a most important stage in its career. The development of the company's large area is proceeding apace and with satisfactory disclosures, the first crushing result has been announced, and the period for the maturing of the first issue of option certificates is at hand.

THE OPTIONS.

The general outlook for the proposition is remarkably good, but the company is in need of additional funds, and having regard to certain representations made to the Modderfontein East Company, Ltd., by option holders on the subject of the extension of the period of the three-year options expiring on 1st July next, the board deems it advisable to make a statement for the information of shareholders and option holders.

Having given the matter careful consideration, the Board desires it to be known that the period of these options will not be extended. These options were granted at the time of the inception of the company (three years ago), and their period was fixed with a view to their falling due and providing the necessary funds at a time when development would have proved the mine to be capable of carrying a reduction plant. This position has been arrived at, and owing partly to the great increase in costs, but chiefly to the rapid progress made, the money provided on flotation has long since been spent, as well as the further sum of £500,000 provided on the security of debentures. The results of the development work carried out by the company to date are eminently favourable. At the end of March last the ore reserve was calculated at 1,552,700 tons of an average value of 7·6 dwts. over 55 inches. Moreover, milling operations at the Apex plant—as a temporary measure pending the erection of the company's own reduction plant at the mine—have been commenced, and, although still largely confined to dump and development rock, are progressing satisfactorily. The company is now in need of additional funds with which to complete its surface and underground equipment so that the Apex mill may be kept fully supplied, and to continue development. It follows that to extend the period of the three year option would not only defeat the purpose in view when the period of that option was fixed, but would seriously cripple the company at this important stage. On these grounds alone the Board cannot accede to any request for extension of the period of the option; but, apart from these reasons, and having submitted the question to legal opinion, the directors are advised that they have no power to extend the period of the option.

INITIAL CRUSHING RESULTS.

With regard to crushing results at the leased Apex mill, the following cable has been sent to the London office of the company: Period April 23 to May 31: Tons transported to Apex, 26,000; tons crushed, 18,500; value of gold recovered, £11,835; loss, £4,000. Ore transported consisted of about 75 per cent. surface development, dumps and current development rock of necessarily low grade, balance (25 per cent.) being ore from preliminary stoping hoisted towards end of period after underground connection between No. 1 and No. 2 shaft effected. Average screen value of tonnage crushed, 4·7 dwts. Recovery low owing to absorption, as all plates had to be conditioned and carrying over considerable tonnage untreated. Amount of gold retained in plant is estimated at 1,745 ozs. Expenditure heavy, incidental to commencing milling operations on unusual lines and influx of inefficient native labour. During transition period until mine reaches stoping basis proper, no direct charge is being made against milling for head office and mine general charges, nor for development, and costs under certain headings are necessarily arbitrary. General underground arrangements will be well advanced about end current month, and enable output much larger tonnage stope rock of good grade. Taking all circumstances into account, well satisfied with initial results.

We understand that the Apex mill is now working up to its full capacity and that the grade of ore milled is improving, whilst development continues to expose a high percentage of payability.

The following is a list of the certificates issued by the Mining Department for the month ending May 31st, 1920:—

Mine Managers.—Collieries: V. M. M. Barrett: D. Watson; Open Cast Mining: M. Wragg; Open Cast Diamonds: J. W. Klein. Mine Overseers (Metal Mines).—G. W. Arnott, A. R. Barber, J. W. Brooker, G. H. Hosking, G. Parry, F. W. Pickard, A. Shaw, W. Uren, J. B. Williams. Vertical Shaft Sinking Only: H. A. Macleod. Assayers.—A. Q. Edwards, R. C. Hall, R. C. McDougall, W. S. Ponsford.

The immense coal reserves in the Vryheid district of Natal have for some time past attracted numerous mining-metallurgic and engineering experts from all over the country. Several influential men recently visited this area for exploration purposes, prospecting tests, and the securing of options. The party comprised the Hon. Hugh Wyndham, with Messrs. Maydew and Mathew Cullen, consulting engineers and mining experts of the Uitkyk Collieries in the Transvaal; Messrs. Izod and Newhall, representing the Corner House, Johannesburg, from the mechanical, electrical and mining points of view; and Mr. Julius Weil, representing Messrs. Lewis & Marks.

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

MINES DEPT. EXAMS.—Recent Results.

Managers.—12 Certificates out of 55 in S A. in a recent 12 months. 21 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 100%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January-May, 1920, we secured 19 out of 30 Certificates in S A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

HEAD, WRIGHTSON & Co., Ltd.,

ENGLAND,

Manufacturers of all Classes of

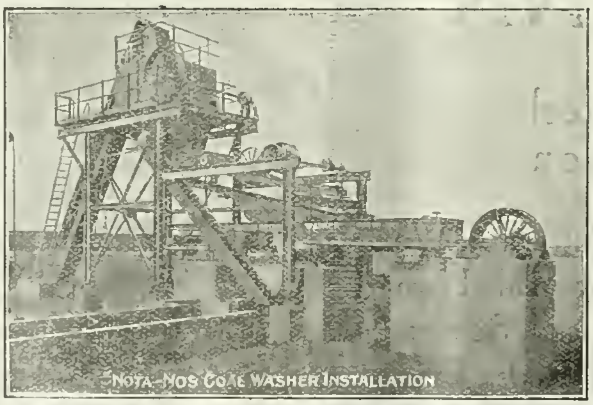
COLLIERY PLANT.

SCREENING PLANT STRUCTURE

Headgears and Coal Screening Plants.

MAKERS OF

- Headgears.
- Headgear Sheaves.
- Cages.
- Kep Gears.
- Stephen Humble Safety Hooks.
- Friction Driven Tipplers.
- Jigging Screens.
- Marcus Screens and Conveyors, etc., etc.



NOTA-NOS COAL WASHER INSTALLATION

MAKERS OF

- Plate Picking Belts.
- Deflecting Jibs.
- Raising & Lowering Gears
- Scraper Conveyers.
- Bar Picking Belts.
- Elevators.
- Creepers.
- Rotary Screens.
- Band Conveyors, etc., etc.

COAL WASHING PLANTS.

Designs prepared and estimates submitted by

HEAD, WRIGHTSON & CO. (SOUTH AFRICA) LTD.,

47-48, Standard Bank Chambers, Johannesburg.

SOLVING THE RAND'S WHITE LABOUR PROBLEMS.

How Efficiency can be Raised—The Joint Works Committees Proposal—Significant Results at the New Goch and Aurora West—A Valuable American View.

It is an earnest of the very real desire for closer co-operation between employers and employees that exists amongst all the controlling houses of the Witwatersrand that the Chamber of Mines is evolving a comprehensive scheme for better operation of the mines through the media of joint works committees. Such a policy is recommended in the report of the Low Grade Mines Commission, and employees right along the reef can rest assured that the Chamber of Mines will spare no effort to make the scheme a success. But it is absolutely imperative that the men themselves should enter whole-heartedly into the co-operative movement. It requires the right spirit on both sides, not on one side only. Sectional strikes, such as the wholly unwarranted recent affair at Springs, which cost that company over £20,000, must cease. Such developments destroy the spirit of mutual trust which exists, or should exist, between capital and labour if any co-operative principle of working is to succeed.

New Goch and Aurora Results.

We have already seen what better efforts on the part of employees can do at the Aurora West and New Goch, where a necessary policy of retrenchment has recently been pursued and where, too, employees have lately "put their backs" into their work. The results secured by these companies in respect of last month's operations are certainly nothing to wax very enthusiastic about. The Aurora earned a profit of £6 and the New Goch £132. But when it is realised that for months past these two companies have been running at a heavy loss, the earning of small profits for May is decidedly encouraging. The New Goch made losses of £3,906 in April, £3,313 in March, and £4,264 in February; whilst the Aurora lost £2,419 in April, £2,491 in March, and £2,183 in February. The conversion of such large losses into small profits is highly encouraging and clearly indicates that still further improvements may be anticipated at these and other mines.

Our Greatest Problem.

The whole subject of the efficiency of white labour on the Rand now seems in some degree to have passed the stage of debate and to have entered the field of practical experiment. Labouring efficiency must improve if our mines are to carry on, and the results secured at the Aurora and Goch make one feel hopeful as to the general success of the movement which has now been set afoot to obtain more production at less cost. Conditions on the Rand are, of course, merely symptomatic of conditions obtaining all the world over in all branches of industry. In so far as mining is concerned, other fields have also to cope with the difficulty of raising the standard of output efficiency from labour in all its post-War aggression to what is called "capital." In the mining fields of the United States the problem has presented enormous difficulties and has recently been a subject of lengthy debate in the columns of the mining press.

A Notable Article.

The following article, appearing in a recent number of the *Mining and Scientific Press* of San Francisco, exhibits a breadth of view and a depth of insight into "industrial relations" which should be noted with great interest on the Rand, where similar difficulties are being encountered.

"The production, in general, of the individual wage-earner to-day, as compared with that of 1914, has decreased between 15 and 50 per cent., depending upon the particular industry and upon local conditions. This fact is incontrovertible. On the other hand, there is urgent need for increased output of most commodities, and until this increase is an accomplished fact, prices, as far as can be foreseen, will not decline. The seriousness of this economic crisis is being explained to the workers and they are being urged to apply themselves with at least pre-War efficiency to their tasks, with a view to reducing the present level of prices and thereby directly benefiting themselves. However, it is difficult to convince the average wage-worker that such action on his part is really to his advantage, and that such a programme offers any tangible benefit to himself and to his family. He reasons that if production is increased to the normal point where it exceeds consumption there will be an over-supply of labour instead of the present shortage, that jobs will become scarce and that wages will drop, necessarily. There is to-day a widespread and implicit understanding among labouring men to restrict individual production, thereby maintaining the present level of wages, no matter what may be the effect on commodity prices. This condition of affairs obtains in the mining industry. The problem is to alter the attitude of the miner and to offer him a definite inducement or incentive to work hard. The paper by Mr. Edwin Higgins, appearing in our issue of February 28, outlined in a comprehensive way various measures that should be taken to obtain co-operation and willing effort from the miner. Attention to sanitation, safety, and first-aid, the improvement of working conditions, various social-service and welfare activities, and the practice of the square deal all are variously contributory to efficient operation. The progressive manager, however, has realised the mutual benefit of adopting these ideas and has made headway, in some degree, toward putting them into effect. There remains, as the main issue between the employer and the employee, the question of financial remuneration, whether in the form of wages or otherwise, for service performed. The principle of the square deal must be made

'Phone 4673. Box 3162.

OSBORN'S
DRILL STEEL (solid and hollow).
TOOL ,,
ALLOY ,,
SPRING ,,
SHAFTING ,,
PLATE ,,

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
"DALY" TAPPETS.
TRUCK WHEELS & AXLES.

"TITAN" MANGANESE STEEL
CRUSHER SPARES & MORTAR-BOX LINERS.

MUSHET HIGH SPEED STEEL.

Files, Shovels, Saws, etc.

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

to apply to the miner's pay as well as to other relations; confidence in the financial honesty of the company must become rooted in the employees, so as to assure them of fair treatment as long as the business thrives; and a system of payment must be devised that will recognise competence and diligence. The average miner really believes that the wealthy owners of the mine are pocketing enormous profits, that this is entirely unearned, and that it represents the exploitation of the wage-earner, who himself has to forego all the good things of life. It has been suggested that the public posting of a company's operating accounts each month would promote confidence and goodwill even though some of the miners might not understand the meaning of all the figures given. Certain large mining companies that had been paying really excessive dividends during the War immediately cut the wages of their men when the price of metals fell early in 1919; although the War wages were no more than enough to provide a mere livelihood for the head of a family and the cost of living showed no prospects of decrease. The fact that some of the companies returned to the former scale after a brief interval indicates that possibly they themselves concluded that the cut had been ill advised. However, from the point of view of the labouring man, such arbitrary action suggested an utter disregard for his welfare, and seemed to support the idea that distribution of dividends was the paramount consideration of the employer. Such inconsiderateness may account to some extent for the present antagonistic attitude of the wage-earners, many of whom sincerely, though mistakenly, think that they are doing the best thing for themselves by restricting output. It will require time and it will need the continued use of the square deal on the part of managers everywhere to inspire the necessary confidence in the broad-gauge honesty of employers. There remains one important influence that can have an immediate good effect on the efficiency of operation: If a miner knows that the harder he works the more money he will receive on pay-day, he is strongly inclined to put forth his best effort.

METHODS OF PAYMENT.

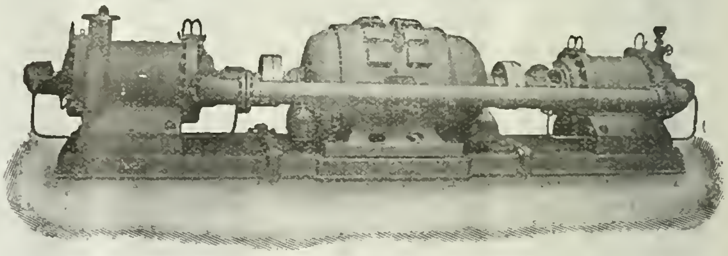
Schemes for paying miners may be grouped under four heads, namely, (1) day's pay, (2) contract or piece work, (3) task and bonus, and (4) co-operative bonus. The only way to get reasonable efficiency by the straight day's pay method is to make the scale of wages in a given district sufficiently high to attract a surplus of first-class men; a miner will then do an average day's work in order to avoid being discharged; but there is little inducement to extra effort. Moreover, the scheme is unscientific, in that it makes no provision for extra pay for exceptional service. In the second plan, payment is based on cubic volume of rock broken, the number of feet advanced, the number of cars trammed, or some other unit. This method is in disrepute because of the former practice, particularly in shop-work, where the piece system originated, of cutting rates when workmen became expert. This was obviously bad faith on the part of the employer. Nevertheless the contract system has the merit of paying each man in proportion to what he accomplishes, and if honestly and fairly administered has advantages that more than offset its shortcomings. In our last issue there was an article by Mr. A. K. Knickerbocker, in which he discusses the contract system as applied in the Minnesota iron mines. He reveals his close contact with the miners, and a sympathetic study of their point of view, no less than a clear comprehension of the problem as it appears to the mine manager. The "task and bonus" plan is a refinement of the contract scheme, and at the same time has distinctive features of its own. A standard time-equivalent for each detail of work is first determined and a complete record of the performance of each miner is kept. The required task may be set at any percentage of the standard and the bonus is based on any accomplishment over and above the task. Every man in the mine can be included. The co-operative bonus plan distributes to every employee who works a specified number of days an equal share of a sum determined from the net result of all operations over a period of a month. It has the merit of encouraging co-operation to a maximum degree; but it makes no distinction between the good man and the extra good one. While it has notable successes to its credit in other industries, it is objectionable as being a kind of profit-sharing scheme; and it is not easily applied to mining operations. There are to-day many individual plants operating at maximum efficiency, in the midst of an immense majority where the production per man has notably decreased. They are doing this because they pay their men well and scientifically; because their employees are reasonably certain of something more than a "living" wage so long as the particular industry flourishes; and because there is a spirit of mutual trust and fairness between employer and employee."

Associated Scientific and Technical Societies of South Africa.
INAUGURAL MEETING, TO-NIGHT,
SATURDAY, 12th JUNE, 1920,
at 8 o'clock, at
100, FOX STREET, JOHANNESBURG.
Admission by Card only, which can be obtained by members from the Secretary of their Society.
MEMBERS ARE REQUESTED TO TURN UP IN FORCE.

In Liquidation.

Globe Garage and Engineering Co., Ltd., Johannesburg; capital £3,000; voluntary.
Benoni Real Estate Syndicate, Ltd., Johannesburg; capital £2,900; voluntary.
William Chapman, Ltd., Potchefstroom; capital £3,000; voluntary.
Snowballs, Ltd., Johannesburg; capital £1,000; voluntary.
E. P. W. Green, Ltd., Johannesburg; capital £4,000; voluntary.
Only Economic Building Association and Shilling Bank, Ltd., Johannesburg; capital £10,000; Order of Court.
African Starch Manufacturing Co., Ltd., Johannesburg; capital £4,000; Order of Court.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.
LARGE LOCAL STOCKS IN
MEDIUM AND LOW-LIFT PUMPS.
For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

THE "LONG-RIG" JACKHAMMER MOUNT.

[By F. C. W. Ingle.]

A problem which has long presented itself to the minds of mining engineers on these fields, is the curtailment in the cost of development which led, in the Far East mines, to lay-outs with up to 1,000 feet backs. In most cases it was found that, with present stoping methods, these very long backs are unwieldy. Now it is not only possible but very probable that stoping methods may be so modified in the course of the next few years as to render long backs a decided advantage. It must be evident that, if a solution is to be found, it will be in something approximating the long-wall system of many coal mines. In this connection it will be interesting to examine the results achieved with the "Long-rig" system of Jackhammer stoping which has been almost universally adopted on the City and Suburban mine, and which promises to lead to the desired end. The first essential for the "Long-rig" system is breast stoping. Faces of any length can be split into sections of from 150 feet to 200 feet, to be stoped by a number of contractors in one continuous face, and a long back is desirable, not only on a fault but on any dip. On the City and Suburban mine extraordinarily good results have been obtained by the "Long-rig" system with Jackhammers. During eight months' work an average efficiency of ·93 fathoms per machine per shift was broken by 3,783 machine shifts in ground which yielded, over the same period, ·59 fathoms per machine per shift with Jackhammers hand-held; the latter figure being in agreement with the results obtained on the neighbouring mines and on the Rand generally. Much has been said of what results may be achieved by standardisation of any work. In the *South African Mining and Engineering Journal* of April 3rd, page 113, in an article dealing with the critical position of the mines to-day, the following appears:

> "As a solution to the problem . . . it is thought that the most promising field of investigation lies in the direction of systematising and standardising mining practice, so as to effect economies in the use of both labour and materials. In other words, to eliminate, in so far as possible, unproductive effort and waste, and therefore secure a maximum of productive results. . . . By teaching the men the correct shovelling methods and by supplying them with shovels of the correct weight and size, the tonnage in one of the large stopes was raised from 8·5 tons per man to 22·9 tons per man, an increase of 169 per cent. . . . By means of a card system, the handling of materials, such as timber, explosives, rails, pipes, as to produce a large saving in timber consumption, and in the use of explosives. The saving in powder amounted to approximately 30 per cent. as compared with the old time hit-or-miss system. . . . It may be seen from the foregoing that standardisation of mining practice and equipment and systemisation of handling and use of materials offer an unusually promising field for investigation. Such investigation should meet with the approval and receive the hearty support and co-operation of the entire mining industry."

The above contentions have been fully borne out by experience in the use of the "long-rig" method for Jackhammers, which is nothing other than a standardisation of stoping. The holes are all drilled at an angle of 40 degrees to 45 degrees to the stoping face, and parallel to one another, to a uniform depth and with a uniform burden, consequently a uniform charge of explosive is required to break each hole. The net result is that during the eight months referred to above, the explosives efficiency obtained by this method averaged 7·2 fathoms to the case for 3,508 fathoms broken. With hammer boys and hand-held Jackhammers, in the same ground, a similar fathomage was broken with an efficiency of 5·3 fathoms to the case of explosives, whereas reciprocating machines broke 3·5 fathoms per case. Again, though the average contract rate per fathom for "long rig" stoping was several shillings less than for the other methods, the contractors using this system earned an average of 54s. per shift, as against averages of 45s. and 39s. per shift for contractors using reciprocating machines and hand-held Jackhammers respectively. The other costs incidental to breaking ground, *i.e.*, timbering, shovelling and tramming, machine and steel costs, etc., were appreciably lower in the "long-rig" stopes (101s. per fathom in shaft bins as against reciprocating machine stopes 115s. and hand-held Jackhammer stopes 137s. per fathom), simply due to the light blasting, the concentration of operations and other obvious factors. One contractor averaged over 1·5 fathoms per machine shift during 8 months, running 3 Jackhammers. The best results obtained for a month's running were 1·82 fathoms per machine per shift by one man and 1·78 fathoms per machine shift by another. These figures have not infrequently been approached by other contractors using the "long-rig" mount for Jackhammers. This method of stoping is now well beyond the experimental stage, and its use is being considerably extended on the City and Suburban mine and into the workings of the City Deep. Needless to say, the output per native is very high, and it is to be hoped other mines will become interested in a method which should go a long way to reduce working costs and increase efficiencies. Another aspect of the question, which deserves careful consideration, is the benefit of standardisation when miners are not as skilled as they were in the past. The "Long-rig" is a rule of thumb method, in which the miner is not called upon to exercise his individual judgment as to the burden and direction of holes. He drills, as it were, to template, and he blasts by standard, both of which can be fixed for him by a skilled miner, the mine captain, or shift-boss, and, provided he carries out his instructions, no further call is made upon him to use either discretion or judgment in the placing of holes or the charges of explosive. Surely this, in itself, is a powerful recommendation when, through the influence of the Phthisis Act, our oldest and best miners have almost disappeared from the mines, to be replaced by an army of young and inexperienced men, more especially when so many of our mines are in a position where a few additional tons and a few pence less in the cost of their production makes all the difference between a profit or a loss.

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368**.

TUTORIAL RESULTS:
46 Survey Certificates to date, including three Honours Certificates
Other coaches have obtained one Survey Pass to date.
Last three Managers' Examinations we lead with passes.
We established a percentage record of passes, January, 1920, Managers' Examination.
We lead with Overseers Passes, 1918 and 1919, combined.
WRITE FOR PARTICULARS AND CLASS TIME TABLE.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

ASSOCIATED SCIENTIFIC AND TECHNICAL SOCIETIES OF SOUTH AFRICA.

Inaugural Meeting of the Institution—Personnel of the New Committee.

Our readers will have noticed from previous Press announcements that the premises until recently known as the Johannesburg Club, 100, Fox Street, have been taken over by the Associated Scientific and Technical Societies of South Africa, an association formed for the purpose of housing under one roof the scientific and technical societies, thereby bringing about the closer relationship of the societies and effecting economy and efficiency in their working. The movement which has resulted in the acquisition of the building has been energetically pushed by a large representative committee, representative of some ten important societies, and the inaugural meeting is to be held in the premises at 8 p.m. on Saturday, the 12th inst., when the individual members of the societies are requested to be present. The night will be a star night in the history of science and technology, and full information as to the aims and objects of the new association will be made public. His Honour the Administrator of the Transvaal will be present, supported by the Presidents of the Chamber of Mines and Chamber of Commerce, and in view of the great importance of this association of scientific and technical men to the community as a whole, it is requested that members will come in force. The present satisfactory position is the result of the sustained efforts of the joint committee, composed of two representatives of each society, which has carried on the work through an executive composed of Mr. Percy Cazalet (chairman), Dr. A. J. Orenstein (vice-chairman), Mr. L. B. Woodworth (chairman of Finance Sub-Committee), Mr. D. M. Sinclair (chairman of Sites and Buildings Sub-Committee), and Mr. G. A. Watermeyer (chairman of the Constitution Sub-Committee).

The members of the joint committee are:—Mr. Percy Cazalet and Mr. W. Elsdon-Dew, South African Institution of Engineers; Mr. H. S. Meyer and Prof. J. A. Wilkinson, Chemical, Metallurgical and Mining Society of South Africa; Prof. W. Buchanan and Mr. L. B. Woodworth (with Mr. J. W. Kirkland alternate), S.A. Institute of Electrical Engineers; Mr. F. L. H. Fleming (alternate, Mr. R. Howden) and Mr. D. M. Sinclair, Association of Transvaal Architects; Mr. G. A. Watermeyer and Mr. W. M. Harries, Institute of Land Surveyors of the Transvaal; Dr. J. McCrae and Mr. J. S. Jamieson, South African Association of Analytical Chemists; Dr. R. B. Young and Mr. J. J. Garrard, Geological Society of South Africa; Prof. John Orr and Prof. Morgan Watkin, South African Association for the Advancement of Science; Mr. S. H. Pearce and Mr. G. Hildick-Smith, Institute of Mining and Metallurgy, London (Local Branch); and Dr. A. J. Orenstein and Sir F. Spencer Lister, British Medical Association (Witwatersrand Branch).

Royal School of Mines' Dinner.

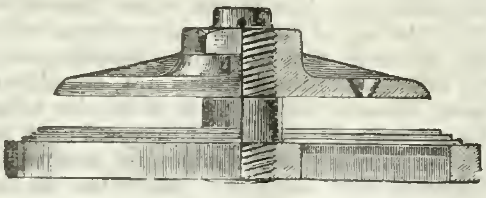
DIPLOMA OR DEGREE?

The forty-third annual dinner of the Royal School of Mines (Old Students) Association was held in mail week. Mr. Ernest E. Woakes presided, and was supported by Sir Thomas K. Rose, Sir Francis Ogilvie, C.B., the Hon. Lionel Holland, Professor W. Watts, C. G. Cullis, A. Fowler, S. J. Truscott, etc. In proposing the toast of "The Royal School of Mines," Sir F. Ogilvie observed that the School was the first institution of its kind in relation to any technical industry which provided training based upon the requirements for the practical work. The School was founded at a time when great stimulus had been given to the study of industrial conditions and invention by the Exhibition of 1851, and many distinguished men were associated with it. The burning question of the moment was diploma or degree. He had very strong views on that question, but considered that the present diploma carried more weight than any other professional diploma he knew of, signifying that its possessor was not merely qualified to practice mining, but was an educated man. The speaker concluded by referring to the strong spirit of camaraderie which characterised the members of the institution.

In responding, Mr. Woakes mentioned that a history of the School was being prepared by Miss Margaret Reekes, who had long been connected with the School, and whose father was the first registrar. The volume would embody a register of students, with particulars of their careers where obtainable. Alluding to the proposal for the registration of mining engineers and professional students, Mr. Woakes remarked that it was extraordinary that in English-speaking countries the mining engineer was not recognised as a professional man. This condition of affairs largely arose from the fact that the older Universities had refused, or were unable, to grant engineering degrees. Fortunately there were prospects of an alteration. He thought the lines to be adopted should be those followed by the medical profession.

The toast of "The Royal School of Mines (Old Students' Association" was proposed by Mr. Walter McDermott, and responded to by Mr. E. B. Lighthill (secretary), who read a fraternal cable from Mr. T. A. Rickard and a telegram from the students in Cornwall.

KINGHORN'S PATENT METALLIC VALVES
FOR
PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.
SOLE SOUTH AFRICAN AGENTS:
GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."

MATTEY HARRIS,
TYPISTE SHORTHAND & TYPING BUREAU
Phone 5743.
9. STOCK EXCHANGE BUILDINGS,
JOHANNESBURG.
Mining Reports, Engineers' Reports, Specifications, etc., copied accurately and promptly.
Copying Work from outside districts invited.

THE MAY OUTPUT: GROUP RETURNS.

Central Mining/Rand Mines Group.

The following are the results of crushing operations of the Central Mining/Rand Mines companies for the month of May:

Company.	Tons crushed	Yield in Fine Gold Ozs.	Estimated Value.	Estimated Profit.	Estimated Working Costs per Ton.
City Deep	78,400	30,006	£144,402	£25,520	30/ 3
Cons. Main Reef	50,100	17,875	86,025	11,473	29/ 9
Crown Mines ...	189,000	58,188	280,032	63,257	22/11
Dur. Rood. Dp.	21,700	6,928	33,188	*3,404	33/ 8
East Rand Prop.	124,000	34,703	167,011	*7,079	28/ 0
Ferreira Deep ..	32,000	10,767	51,865	7,040	28/ 0
Geldenhuis Dp..	44,200	13,042	62,765	*1,474	29/ 0
Knight Central .	25,100	7,576	36,460	2,214	27/ 3
Modder B.	50,200	24,267	116,785	49,185	26/11
New Modder ...	86,000	44,124	212,333	110,885	23/ 7
Nourse Mines ...	42,500	14,003	67,394	1,979	30/ 9
Robinson	10,300	9,461	45,531	3,313	20/11
Rose Deep	55,800	14,719	70,835	12,370	20/11
Village M.R. ...	15,700	5,086	24,478	2,151	28/ 5
Wolhuter	32,500	8,624	41,143	3,079	23/ 5
Village Deep ...	47,900	15,369	73,966	7,815	27/ 7
Tls. & averages	935,400	314,735	1,514,210	288,324	26/ 2

* Loss.

City Deep.—The decrease in profit at the City Deep is due to a very close clean up by the City and Suburban on their own behalf, occupying until 9th May, with consequent re-absorption of gold by plant. This left the City Deep only about 20 days' milling against the expenses of a full month in that section. Preparatory work consequent upon fusion of properties occasioned disorganisation.

Modder B.—Improved results were due to higher mine grade, which is definitely expected to be fully maintained and probably improved. Tonnage output still below capacity of plant; but new compressor will be in operation during current month and will greatly increase facilities for breaking and handling rock.

General Note.—The valuation of gold has been taken at £5 5s., less realisation charges of 8s. 9d., per fine oz.

Albu Group.

The following information is supplied regarding the May operations of the producing mines of the General Mining group:—

Company	Tons Crushed	Cost.	Cost per Ton.	Total Revenue.	Profit.
Aurora West ...	10,240	£13,184	25·75	£13,190	£6
Meyer & Charl.	14,200	18,166	25·58	44,513	26,347
New Goch	16,500	17,035	20·65	17,167	132
Roodepoort Un.	24,000	28,016	23·35	25,532	*2,484
Van Ryn Est...	37,750	37,576	19·91	42,629	5,053
West Rand Cn.	33,450	43,128	25·79	46,129	3,001
	136,140	£157,105	23·08	£189,160	£34,539
				Less loss	2,484
					£32,055

* Loss.

In calculating the revenue, gold has been taken at a value of 105s. per fine oz., less estimated realisation charges.

The improved results from the Aurora West and New Goch are consequent on the adoption of the retrenchment schemes recently brought into operation.

The working costs on the New Goch include an amount of £2,171 expended on shaft sinking and development in the claims leased from the City Deep, Ltd.

Union Corporation.

Results of operations on the producing mines of this group for the month of May:

Company	Stamps.	Tons Crushed.	Fine Ozs.	Total Revenue.	Revenue per ton.
Geduld Proprietary .	100	43,500	15,417	£75,131	34/ 6
Modder Deep Levels	70	40,800	21,689	104,568	51/ 3
Princess Estate ...	60	19,000	4,640	22,640	23/10
Totals	230	103,300	41,746	£202,339	—

Company.	Costs. Total.	Costs. Per Ton.	Profit. Total.	Profit. Per Ton
Geduld Proprietary ...	£52,043	23/11	£23,088	10/ 7
Modder Deep Levels ...	47,034	23/ 1	57,534	28/ 2
			£80,622	
Princess Estate	27,985	29/ 5	*5,345	5/ 7
Totals	£127,062	—	£75,277	—

* Loss.

The revenue is based on a value per fine oz. of £5 5s. Realisation charges in excess of normal are debited direct to revenue account.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office

BARSDORF'S BUILDINGS

MARSHALL STREET,

Box 4047. Telegrams: "Thaine."

JOHANNESBURG.

Barnato Group.

The results of operations of the Barnato group for May are as follow:

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	44,800	£66,849
Government Areas	200	122,500	257,384
Langlaagte Estate	200	42,000	65,331
New Primrose	110	20,000	21,592
New Unified	60	10,300	14,770
Randfontein Central	600	148,000	176,696
Van Ryn Deep	90	46,500	132,492
Witwatersrand	215	37,050	54,939
Totals and averages ...	1575	471,150	£790,053
April totals	1575	450,750	£755,113

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings.	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ...	£57,957	25·874	£9,107
Government Areas	157,404	25·699	100,700
Langlaagte Estate	56,640	26·971	8,891
New Primrose	20,664	20·664	1,007
New Unified	12,498	24·267	2,331
Randfontein Central	201,815	27·272	*23,957
Van Ryn Deep	67,602	29·076	66,075
Witwatersrand	47,715	25·757	8,811
Totals and averages ...	£622,295	26·416	£172,965
April totals	£599,999	26·622	£159,352

* Loss.

Note.—The above results are arrived at by calculating the gold produced at £5 5s. per fine oz.

Monthly Gross Profit.—January, £290,567; February, £174,380; March, £241,002; April, £159,352; May, £172,965.

Randfontein Central.—Block A shaft still out of commission. It is expected to recommence hauling from this shaft at beginning of July next.

Consolidated Mines Selection Group.

The following are the results of operations for the month of May:

	Stamps Working.	Tons Milled.	Working Costs per Ton Milled
Brakpan Mines	100	47,200	30/10·549
Springs Mines	80	38,000	29/11·306
Totals and averages ...	190	85,200	30/ 5·535

	Value of Gold declared.	Yield per Ton.	Working Profit based on standard value of Gold.	Working Profit per Ton.
Brakpan Mines ...	£82,887	35/ 1·459	£10,012	4/ 2·910
Springs Mines ...	75,952	39/11·700	19,062	10/ 0·394
Totals & averages	£158,839	37/ 3·434	£29,074	6/ 9·899

	Estimated Premium on output taking Gold at £5 5s. 0d. per fine oz. after allowing for exchange on value of Output.	Total Estimated Profit.
Brakpan Mines	£10,960	£20,972
Springs Mines	9,967	29,029
Totals and averages	£20,927	£50,001

Brakpan Mines.—Gold reserve unchanged, 3,724 fine ozs.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits or losses for the month of May of the undermentioned companies of the Consolidated Gold Fields group:

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs	Profit
Simmer and Jack ...	320	7	56,800	14,613	£5,007
Robinson Deep	160	9	52,500	16,662	3,659
Knights Deep	400	11	96,100	77,904	2,912
Simmer Deep	220	10	50,500	11,305	591
Jupiter	80	5	23,100	5,648	*2,169
Sub Nigel	30	2	10,300	6,285	7,019
Totals	1,210	44	289,300	72,417	£17,019

* Loss.

Gold in Reserve.—Simmer and Jack, 500 ozs.; Sub Nigel, 2,200 ozs.; total, 2,700 ozs.

Revenue derived from gold for the month of May is calculated at the rate of £5 5s. per fine oz., less estimated gold realisation and exchange charges, 7s. 6d. per fine oz., or a net figure of £4 17s. 6d. per fine oz.

Robinson Deep.—Operations during the early part of the month were dislocated by mishap to shaft No. 1, which also caused heavy expenditure for repairs and for temporary arrangements for handling all ore from Chris shaft.

Transvaal G.M. Estates.

The following are the particulars of the output of the Transvaal G.M. Estates for the month of May, 1920: Central Mines: Tons crushed, 13,400, yielding 4,169 fine ozs. Elandsdrift Mine: Tons crushed, 1,520, yielding 1,171 fine ozs. Vaalhoek Mine: Tons crushed, 1,730, yielding 701 fine ozs. Estimated value of month's output, £29,708; estimated profit for the month, £4,524. The month's results are based on a value of gold of £5 5s. per fine oz., less realisation charges. In addition to the above, a profit of £4,785 has accrued from adjustment of gold premium, November-December, 1919, which will be included in accounts of past financial year.

Glynn's Lydenburg.

The following are the particulars of the output of the Glynn's Lydenburg for the month of May: Tons crushed, 3,680, yielding 1,187 fine ozs.; estimated value of month's output, £6,931; estimated profit for the month, £1,966. The above results include £1,103, adjustment of gold premium to December, 1919. The month's results are based on a value of gold of £5 5s. per fine oz., less realisation charges.

New Kleinfontein.

Appended are details of the operations on the New Kleinfontein property for May: Stamps, 200; days, 27; tube mills, 4; tons milled, 45,560; gold recovered, 13,341 fine ozs.; value, less cost of realisation, £63,783; profit, £2,684; working costs per ton (excluding development), £1 5s. 7d.; development to working costs per ton, 1s. 2d.; total working costs per ton, £1 6s. 9d.; capital expenditure, nil; cost of pumping and closing down of Apex section, £1,557. The revenue for the month is calculated at £5 5s. per fine oz.

New Heriot.

The following are particulars of this company's operations for the month of May: Ore milled, 10,390 tons; gold recovered, 2,981 ozs.; loss, £2,913.

THE MAY OUTPUT IN DETAIL.

The May gold output returns are as follows:

WITWATERSRAND

	Ozs.
May	681,551
April	667,926
Increase	13,625

OUTSIDE DISTRICTS.

May	17,490
April	19,053
Decrease	1,563

GRAND TOTAL.

May	699,041
April	686,979
Increase	12,062

COMPANY RETURNS.

WITWATERSRAND.

	Ozs.	Increase.	Decrease.
Aurora West	2,697	—	439
Brakpan Mines	19,628	2,168	—
City and Suburban	—	—	6,225
City Deep	30,006	4,994	—
Con. Langlaagte	12,733	—	272
Con. Main Reef	17,875	1,005	—
Crown Mines	58,239	3,263	—
Durban Deep	6,928	566	—
East Rand Proprietary ...	34,703	507	—
Ferreira Deep	10,839	—	447
Geduld Proprietary	15,417	508	—
Geldenhuis Deep	13,042	186	—
Government Areas	49,026	—	41
Jupiter	5,648	—	57
Knight Central	7,576	—	47
Knights Deep	17,904	1,378	—
Langlaagte Estate	12,444	709	—
Meyer and Charlton	8,972	623	—
Modder B.	24,267	874	—
Modder Deep	21,689	—	69
New Goch	3,622	273	—
New Heriot	2,981	143	—
New Kleinfontein	13,341	—	956
New Modder	44,121	—	441
New Primrose	4,113	172	—
New Unified	2,813	—	80
Nourse Mines	14,003	469	—
Princess Estate	4,640	—	269
Randfontein Central	33,656	1,758	—
Robinson	9,461	—	59
Robinson Deep	16,662	—	1,518
Roodepoort United	5,250	731	—
Rose Deep	14,719	—	262
Simmer and Jack	14,613	2,254	—
Simmer Deep	11,305	913	—
Springs Mines	17,998	—	87
Van Ryn Estate	8,689	—	415
Van Ryn Deep	25,237	421	—
Village Deep	15,369	976	—
Village Main Reef	5,167	334	—
West Rand Consolidated...	9,426	244	—
Witwatersrand	10,465	481	—
Wit. Deep	7,548	—	1,378
Wolhuter	8,660	—	83
Luipaardsvlei	5,079	15	—
Miscellaneous	2,980	805	—

OUTSIDE DISTRICTS.

	Ozs.	Increase.	Decrease.
Sub Nigel	6,285	201	—
Barrett	151	35	—
Glynn's Lydenburg	1,187	—	260
Transvaal G.M. Estates ...	6,041	336	—
Consort	424	—	77
Miscellaneous	3,402	—	1,798

NATIVE LABOUR.

The number of natives employed on the last day of the month by the W.N.L.A. and contractors were: On gold mines, 184,722; on coal mines, 12,897; on diamond mines, 4,793; total, 202,412. The figures for the previous month were: On gold mines, 189,446; on coal mines, 12,951; on diamond mines, 5,057; total, 207,454.

S.A.R. Purchases.

The attention of the General Manager of Railways has been drawn by the Johannesburg Chamber of Commerce to the fact that prior to the commencement of the War the Administration purchased machinery and other goods in large quantities in South Africa, and that orders were placed through local merchants as far as possible, but that, owing to the exigencies of the War this practice had been in abeyance. The Executive Committee of the Chamber, therefore, urged that now the War is over the Administration should revert to its former practice and give the merchants of this country an opportunity of supplying as far as possible all machinery and other stores which may be required.

* * * *

Power for Industrial Concerns.

Mr. T. F. Allen, at this week's meeting of the Johannesburg Town Council, asked the chairman of the Tramway and Lighting Committee whether he would consider the advisability of negotiating with the Victoria Falls Power Company for the purpose of supplying power to industrial concerns in the municipal area, and as the Council was now considering spending large sums of money in extension of plant when prices were so inflated, if he did not consider this would be a much sounder financial proposition than spending a hundred thousand of the ratepayers' money to supply current practically at cost. Mr. Clark replied that such negotiations with the Victoria Falls Power Company could not be considered.

* * * *

The Messina Arbitration.

The terms of reference in the recent dispute at the Messina Mine did not leave any loophole for the arbitrators, Sir R. N. Kotzé, the Government Mining Engineer, Mr. H. O. Buckle, the President of the Chamber of Mines, and Mr. A. Crawford, the Secretary of the South African Industrial Federation. These terms demanded a plain "Yes" or "No" to the matter in dispute, without comment from any of the gentlemen in question, and the matter in dispute was whether the Messina Copper Company had made a promise to pay all employees a retrospective bonus as from November 1, 1919, and consolidated pay as from March 1, 1920, such bonus pay to be calculated upon the Chamber of Mines last new agreement based upon the present wage ruling scale of the Messina Company. The arbitrators ultimately found in favour of the company. In the meantime Mr. Crawford, on behalf of the South African Industrial Federation, had been busy endeavouring to effect a compromise, and he got the Messina Company to agree, whatever award was made, to date the new conditions back to January 10. This compromise, it is said, was one that appealed to both sides, and it is one that has been accepted, and is regarded as an agreeable way out of the difficulty.

HADFIELDS Ltd.

East Hecla and Hecla Works, Sheffield, England.

Workmen employed during the war, over 15,000.

Works area over 200 Acres

COMPLETE STONE BREAKING AND ORE CRUSHING PLANTS

RENEWALS AND WEARING PARTS SUPPLIED FOR EVERY KNOWN MAKE OF MACHINE.

Mining Requisites

Special Forged Steel Balls or Ball and Tube Mills. Shoes, Dies, Grizzley Bars, Crushing Rolls, Jaw Faces, Cones, Concaves, Wheels and Axles, etc.

Steel Castings & Forgings

of all descriptions.

ERA

Trade Mark.

Sole Makers of HADFIELD'S PATENT

MANGANESE STEEL

The Supreme Material for the Wearing Parts of Stone Breaking and Ore Crushing Machinery, etc.

Head Office for South Africa:
46 & 47, CULLINAN BUILDINGS,
JOHANNESBURG.
'Phone 5900. Tel. Add.: "Hecla."

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers

Salisbury Agents:
P PEECH & CO.,
Angwa Street.

Natal Agents:
THOMAS BARLOW & SONS (S.A.) Limited
Smith Street, Durban.

United Asbestos African Agency,

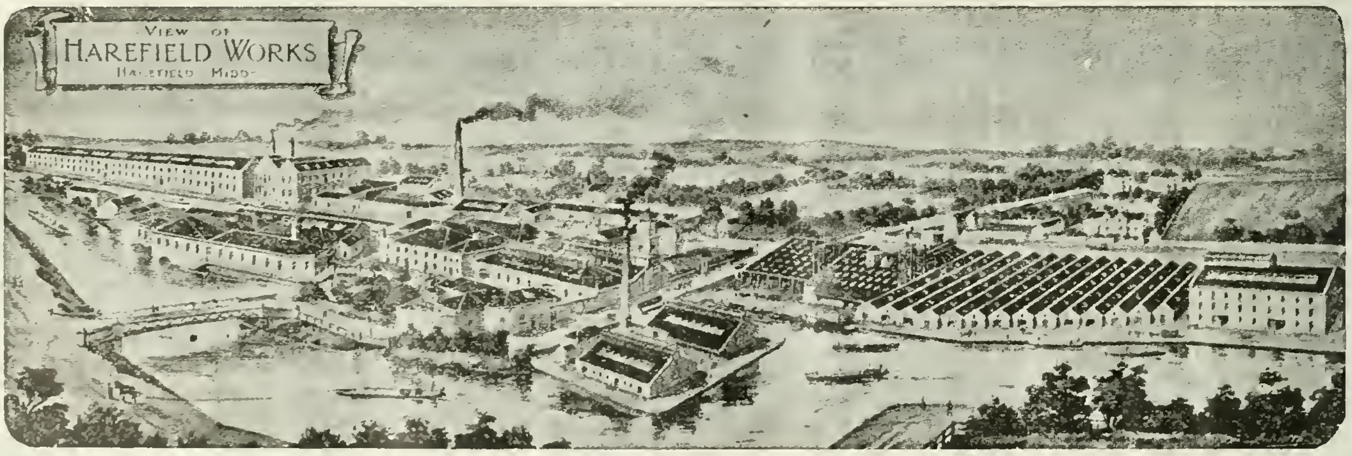
LIMITED.

Telephone No. 345, Central, 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR

BELL'S UNITED ASBESTOS CO., LTD.

(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD).



VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

"GLADIATOR" ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of "Gladiator" Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

JOINT WORKS COMMITTEES ON THE MINES.

ARISING out of the recommendations of the Low Grade Mines Commission in the matter of joint works committees on the gold mines, the Chamber of Mines has submitted a draft scheme or constitution for the working of these committees to the S.A. Industrial Federation. The scheme sets forth the objects of the committees as follow: (1) That the workmen be given a wider interest in and greater responsibility for the conditions under which their work is performed; (2) that the agreements made between the Chamber of Mines and the various employees' organisations be enforced, and that the recommendations of Boards of Reference be supported; (3) that friction and misunderstanding be prevented as far as possible. The committees are to consist of representatives of the management (called the Works Management Committee) and an equal number of representatives of the workers (known as the Workmen's Committee). The latter are to be elected from the daily-paid workmen and contractors with not less than twelve months' service on the mine. Regular meetings would be held once a month and special meetings when necessary. The joint committees are to have advisory functions only, as laid down by the Low Grade Mines Commission. These are stated in more detail as discussion of the following: (1) The issue and revision of works rules. (2) The distribution of working hours; breaks, time recording, etc. (3) The method of payment of wages (time, form of pay ticket, etc.). (4) The settlement of grievances. (5) Questions of physical welfare, such as drinking water, lavatories and washing accommodation, change houses, ventilation, heating and sanitation; accidents, safety appliances, first aid, ambulances, etc. (6) Questions of discipline and conduct as between management and workmen (malingering, bullying, punctuality, publicity in regard to rules, supervision of notice boards, etc.). (7) Consideration of suggestions for improvement in efficiency and methods of work. (8) Collections (for clubs, charities, etc.). The present Safety First and Grievance Committees will be absorbed in the new committees, which will fulfil their functions.

An unusual application was made this week to the High Court respecting the Great Namaqualand Exploration Company, Ltd., a company which it was stated had lain dormant many years, and of which Cecil Rhodes was the first chairman. The company in 1890 took over certain concessions granted by certain chiefs in South-West Africa to Robert Duncan, Robert James Duncan and Robert McKimmie. The capital of the company was £10,000 of which £3,000 was allotted as fully paid up shares to holders of the concessions taken over by the company. The company had never been able to carry out the objects for which it was established, because the German Government refused to recognise the concessions, despite the fact that the Anglo-German Treaty of 1890 provided such concessions should be recognised by British or German Powers. When the German Commission sat in 1893 at Windhuk one of the chiefs who granted the concession was at war with Germany. Robert McKimmie and Robert J. Duncan attended the Commission. They were charged with supplying ammunition to this chief, and McKimmie was placed under arrest and Duncan compelled to flee the country, and the claims were rejected. A long correspondence between the company, the British Government, and the German Government ensued, which was not completed in 1912. A new Concessions Commission sits at Swakopmund in July next, and this company has been informed it can appear and object to such claims being recognised as may conflict with its claims.

There are no directors of the company, and the Court granted the secretary permission to call a meeting of shareholders, without complying with the usual provisions.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

A YEAR'S MINING IN RHODESIA.

Official Review by the Secretary for Mines.

In his report for 1919 the Secretary for Mines for Southern Rhodesia remarks that the cessation of hostilities brought little relief to the mining industry, as the prices for mining requisites still showed an upward tendency. Restriction in shipping militated against the shipment of essential machinery from Europe, even if it was obtainable, and also restricted the export from Southern Rhodesia of base minerals such as chrome ore and asbestos. Until June, 1919, the price for gold remained at war figures, viz., 76s. per standard ounce, and the subsequent rise to 76s. 9d. per ounce and 77s. per ounce did not appreciably affect the producer in view of the general increase of mining materials and living expenses. The position was viewed with considerable alarm, as with gold at a stationary figure of £4 4s. per fine ounce it seemed impossible for the smaller producers and lower grade mines to continue. The pooling scheme, however, inaugurated by Messrs. Rothschilds, which came into existence as from the end of July, and the appreciable rise in value of bullion which was announced towards the end of the year, put fresh courage into gold producers. In the last quarter of the year it was clear that greater activity and interest was manifested in gold mining. The different Mining Commisisoners reported renewed interest in prospecting and examination of properties which had been previously worked, and a larger number of producers may be anticipated. The complete cessation of work on two large producing mines in 1919 will, however, affect the general output, and a rise in the production of bullion is not likely to occur; but there is little doubt that more work will be carried out, and more money invested in gold mining than has occurred for some years past, and the results will be realised in the future. There is every possibility also that two larger mines will enter the producing stage during 1920, which will help the output.

The year under review shows a fall in the output of gold and values, but with regard to the latter the enhanced price for bullion which was obtained towards the end of 1919 for a portion of that year's output was not brought to account until January, 1920, and portion has not yet been accounted for. A further cause of the fall in output was attributable to a strike amongst the white employees of some of the largest gold-producing mines, which resulted in the mills being held up for some days, and a consequent loss in output. After considerable discussion a general increase in wages was agreed upon to meet the advancing price of living.

BASE METALS.

The war brought home to Southern Rhodesia the necessity of attending to its base mineral deposits, and though the cessation of hostilities caused a serious fall in the price of copper and tungstic ores, which has created a temporary set-back in them, the information gained as to our base mineral possibilities has been of great value. The country has proved asbestos of high quality and in large quantities, chrome ore of high grade and unlimited, coal which is acknowledged to be of best quality, scheelite which will rise again in price when the present heavy stocks in Europe have been used up, copper of which a steady output has been maintained by the Falcon Mines, and, with prices now becoming more stationary, there is every possibility of smaller properties producing again, arsenic which has largely captured the cattle-dipping requirements of Southern Rhodesia, and is now making itself felt in the Union, and mica which promises to develop into a sound industry. In addition to the above-named metals, prospecting for other base minerals had been very noticeable, and it is hoped that further base minerals of commercial value will be proved. The staff of the Mines Department has been strengthened by the addition of a Mineralogist and Engineer, whose services are at the disposal of the public for the determination of mineral specimens, and a very fair number of specimens are being sent in for examination from different parts of the country. Field work by the officers of the Geological Survey Department has also been carried out more extensively, and more bulletins have been issued which have been of value to, and appreciated by, the mining public.

A prospecting fund was created by contributions from the Government and Central War Fund to assist returned soldiers who desired to carry out prospecting operations, and a number of these soldiers were sent out into different districts under the auspices of the Returned Soldiers Prospectors' Fund, and were given an allowance to meet their prospecting expenses. The prospecting fund retains a 10 per cent. interest in any discoveries which may be made or sales effected.

The Government discussed with the representative bodies of the mining industry the necessity of arriving at a definite date on which no further special war protection would be allowed on claims with overdue inspections. It was arranged that overdue inspections should be acquired by the 31st December, 1919, or the claims would be liable to forfeiture, except where work was in progress, when the Secretary for Mines was authorised to allow such further periods of protection as might be necessary to complete the footage.

Representations were made that some claimholders who had registered claims after the 31st October, 1914, had subsequently proceeded on active service, and it was arranged that free protection should be granted to them for the period of their enrolment to their discharge, and for nine months after such discharge

DIVIDENDS PAID.

The dividends paid by the larger mining companies during 1919 amounted to £578,201, and, judging by the monthly declarations, some of the smaller producers must have done well, but in the case of others it is only with the strictest economy that their mills were able to be kept going. Dividends to the extent of £330,945 were declared by Rhodesian development, and miscellaneous companies connected with the mining industry.

The supply of native labour was on the whole satisfactory, but with the rise in price of wearing materials and luxuries, the local supply of labour from Southern Rhodesia will certainly demand a higher wage. The pay of Northern natives must be raised if the local supply is paid a higher wage, and with the staple food of natives rising in price, and wages as well, the mines will have to face heavier monthly expenditure. The monthly average number of native employees was 30,300. The monthly average of Europeans employed was 1,358, a small decrease as compared with the previous year.

The total production of gold during 1919 amounted to 593,222 ounces, valued at £2,499,498, as against 631,358 ounces, valued at £2,652,250 in 1918, or a decrease of 38,136 ounces, of a value of £152,752. The sale price of gold remained at 76s. per standard ounce until about the end of June, 1919. For two months the price was increased to 76s. 9d., and then advanced to 77s., but the pooling scheme in London came into effect towards the end of the year, and better prices for some of the 1919 gold have been obtained, which will appear in the coming year's figures. Ten mines produced over 10,000 ounces during the year, viz.: Shamva, 95,536 oz.; Globe and Phoenix, 87,888 ozs.; Lonely, 71,763 ozs.; Rezende, 37,207 ozs.; Falcon, 32,900 ozs.; Eldorado, 24,989 ozs.; Gaika, 14,995ozs.; Fred, 14,381ozs.; Antelope, 12,481 ozs.; Connemara, 10,326 ozs. These mines produced 67.84 per cent. of the total production, and as both the Eldorado and Antelope ceased work during the year, it will be seen that new producers will be required to make up the total of their 1919 production.

Cape Diamond Diggings Returns.

The output of diamonds from the public diggings in the Cape Province during the month of April was as under (the number of claimholders in Barkly West District being given as 1,606):—

BARKLY WEST DISTRICT (3,415¾ carats, value £51,840 9s. 6d.).

	Diggers.	Carats.	Value.
Bad Hope	1	¾	£6
Delport's Hope	23	71¾	863
Forlorn Hope	4	17	173
Gong Gong	38	237¼	3688
Good Hope	75	335	3118
Hebron	68	243½	4641
Holpan	31	169¼	3397
Harrisdale	44	368	8109
Jonas Kopje	5	8½	105
Kareepan	40	244¾	5039
Keiskama	1	2	12
Klipdam	56	167¾	1766
Klipdrift	88	441¼	4353
Last Hope	7	21¾	188
Longlands	50	361½	5109
Niekerk's Rush	12	48¼	380
Scholtz's Prospect	25	101	1524
Snyder's Rush	11	76¾	1907
Van Zoelen's Laagte	5	32¼	378
Waldeck's Plant	18	301¾	3515
Ward'c Hope	7	46¼	478
Winter's Rush	20	164½	3083
HERBERT DISTRICT (518¾ carats, value £12,146 14s.)			
Brypaal	17	180½	6171
Davisdrift	20	87¼	1677
Mosesberg	12	138¾	2051
Platdrift	2	9	50
Schmidt's Drift	22	100¼	2155
Sevonelles	2	3	41
KIMBERLEY DISTRICT (350 carats, value £7.281).			
Robinson's Kopje	13	170¾	4535½
Wedberg	32	179¼	2745½
TAUNGS DISTRICT (2,892 carats, value £48,658 15s.).			
Home Rule	33	441¾	7555
Killarney	5	23½	272
Tlapeng	403	2426¾	40831
PRIVATE ESTATES.			
River View Diamond Syndicate		97	1725
Pniel Estate		136½	1745
New Vaal River D. and E. Syndicate		1069½	17601

THE WEEK IN THE SHAREMARKET.

A Turn for the Better—Modder Easts, Frank Smith Diamonds and Silvers Improve.

The local market has been substantially better during the past few days. Although London prices have not evidenced much activity there has been a generally improved tone on the Johannesburg Exchange. More business has been done at higher levels and a more hopeful feeling prevails all round. Doubtless the advent of the dividend season and the better outlook in regard to white labour have tempted investors and operators who have held aloof for some time to come again into Kaffirs. Modder Easts have been the feature of the week. The shares have risen 2s. up to 24s. and the three-year or red options, after receding to 1s., have been dealt in at 2s. 4d. The four-year options are substantially firmer at 8s. and the debentures have improved to £122½. Modder stocks generally are better, but Springs are still weak at 39s. 9d. Diamonds are the turn harder, Frank Smiths, Rouxvilles and Crowns all being marked up. Transvaal Silvers are wanted at 44s. African Oils remain firm at 15s. 6d., and Geluks are in some demand around 3s. 6d.—4s. Closing prices on Thursday afternoon were: Anglo-Americans, 34s., buyers; Crown Diamonds, 8s. 3d., sales; Frank Smiths, 12s. 4½d.; Modder Easts, 24s.; three-year options, 2s. 3d.; four-year options, 8s.; debentures, £122 10s.; Modder Bs., £6 4s.; Modder Deeps, 47s. 9d.; New Modders, 68s. 6d.—69s.; State Mines, 86s. 6d.; Transvaal Silvers, 44s., buyers; Van Ryn Deeps, 84s.; Greig Diamonds, 15s.; Postmas, 8s. 6d.

	Fri. 4th.	Sat. 5th.	Mon. 7th.	Tues. 8th.	Wed. 9th.	Thurs. 10th.
Anglo-Amer. Corp.	31 3*	31 6*	32 3*	34 0	33 0	34 0
Apex Mines	7 0†	6 9†	7 3†	—	6 9†	—
Aurora Wests	—	—	3 6†	—	—	—
Bantjes Cons.	2 9*	2 9*	2 6*	2 6*	2 6	2 6*
Brakpan Mines	49 0*	48 6	47 6	47 6*	47 6*	47 6*
Breyten Collieries	8 0*	8 0*	8 0*	8 0*	—	—
Brick and Potteries	—	—	—	—	—	5 0*
Bushveld Tins	1 3*	1 3*	1 6†	1 3*	—	1 0*
Cinderella Cons.	—	—	6 0†	6 0†	6 0†	6 0†
City and Subs.	—	—	6 3†	—	—	—
Con. Diamonds	-	—	39 0†	35 0*	37 6†	37 0†
City Deeps	48 9†	48 9†	46 0*	47 6†	44 0*	44 0*
Clydesdale Colls.	23 0*	—	23 0*	—	—	23 0*
Con. Investments	20 0*	24 0*	24 0*	—	—	—
Con. Langlaagtes	17 6	17 0†	17 0†	—	16 6†	—
Con. Main Reefs	11 3*	11 6*	11 0*	—	11 6	11 3*
Con. Mines. Select.	21 0*	—	—	24 0†	—	21 0*
Coronation Freeholds	1 2	1 2*	1 0*	1 2	1 2*	1 2*
Crown Diamonds	8 0	8 0	7 9*	7 9	7 6*	7 9*
Crown Mines	50 0†	—	—	—	50 0†	—
Daggafontein Mines.	10 3*	10 6*	10 3	9 3	9 0*	10 6
Do. Opts. (4 yrs.)	0 1*	0 1*	0 1*	—	—	0 1*
E.R. Coals	—	2 3*	2 3*	—	2 3	2 3*
E.R. Deeps	0 8	1 0†	—	1 0†	1 0†	—
E.R. Props.	6 3	6 0*	6 0*	6 3*	6 0*	6 6
Eastern Golds	1 0*	1 1	1 0*	1 1	1 0*	1 1*
Frank Smith Dmds.	11 9	11 9	11 6*	11 6*	12 0a	11 9
Geduld Props.	38 0*	38 6*	—	38 6*	38 0*	38 9*
Ginsbergs	—	—	—	1 0*	—	—
Glencairns	—	—	1 0	1 0*	—	—
Glencoe Collieries	6 0*	6 0*	6 3*	6 6*	7 0*	—
Glynn's Lydenburgs.	—	—	—	10 6*	—	—
Govt. Areas	85 0	85 9	85 0*	85 0	85 0*	86 3
Hume Pipes	23 9*	24 0	23 6*	23 0*	23 6*	—
Jhb. Bd. of Ex.	—	38 6*	37 6*	37 6*	37 6*	37 6*
Jupiters	2 9*	2 6*	2 0*	2 3*	2 0*	2 0*
Klerksdorp Props	2 0*	2 0*	2 0*	2 0*	2 0*	2 0*
Knight Deeps	—	4 9*	4 9*	4 9*	4 9*	—
Kaalfontein Dmds.	0 3	0 4*	0 3*	0 3*	0 3*	0 3*
Lace Props.	8 6*	9 0	8 9*	8 9*	9 6	9 6*
Leeuwpoort Tins	19 0	18 6	17 9	17 0*	—	17 0*
Lydenburg Farms	8 0*	8 0*	8 0*	8 0*	8 0*	8 0*
Meyer and Charltons	—	80 0*	—	—	—	—
Middelvlei Estates	1 0*	—	—	—	—	—
Modder B.'s	125 0†	122 6b	121 0*	125 0a	120 0*	122 6*
Modder Deeps	46 6*	47 0	47 3	47 3	48 0	48 0
Modder Easts	22 6	22 4½	22 4½	22 6	22 9	23 10½
Do. Opts. (3 yrs.)	1 1	1 0*	1 0	1 0	1 2	2 6
Do. Opts. (4 yrs.)	6 0*	6 0*	6 0	6 1*	6 4*	7 10½
Modder Wests	18 0†	17 3*	17 0	18 3†	17 6†	—
New State Mines	26 0	25 9	26 6	27 6a	26 3*	26 6*
National Banks	—	—	—	260 0†	270 0†	—
New Boksburgs	1 7*	1 7	1 6*	—	—	1 6*
New Eland Dmds.	55 0*	55 0*	—	—	—	57 6*
New Era Cons	—	8 0*	—	10 0†	—	—
New Geduld Deeps.	1 9	—	1 7*	1 10†	1 10†	1 7*
New Kleinfonteins	6 6*		7 0	7 0	6 6*	6 9*
New Modders	66 0	66 9	68 0a	67 6*	68 6*	68 6*
New Primrose	3 3†	—	—	—	—	3 6†
New Unifieds	3 6*	3 6*	3 6*	—	3 6*	3 0a
Nigels	—	7 0†	—	—	—	—
Nourse Mines	—	—	10 0†		5 0*	6 0
Pretoria Cements	102 0*	103 0	103 0*	106 6	105 0*	108 0
Princess Estates	0 8	—	0 6*	0 6*	0 6*	0 5*
Rand Nucleus	1 3*	1 3	—	1 3*	1 3*	1 3*
Rand Select. Corp.	—	—	—	66 0*	—	—
Randfontein Deeps	6 3*	6 0*	5 6*	—	6 6†	6 6†
Randfontein Estates.	16 0*	16 0	—	—	15 0*	—
Roberts Victors	13 6	14 0*	15 6*	15 0*	15 0*	15 6
Ryan Nigels	3 0*	—	3 3*	3 3*	—	3 3*
Rouxville Dmds.	17 0	18 0	19 0*	20 6*	21 9	24 6
South Van Ryns	7 3*	7 3*	7 3*	7 3*	7 6	7 6*
S.A. Townships	10 6	10 6*	—	10 6	10 0*	—
S.A. Alkali	19 0*	19 0*	19 3*	19 0*	—	19 3*
Shebas	—	—	2 0†	—	—	—
Simmer Deeps	1 0†	1 0†	1 0†	0 6	0 6*	—
SA. Breweries	32 0†	—	—	32 0†	32 0†	32 6†
S.A. Lands	4 3*	4 3*	4 6†	4 3*	4 3*	4 3*
Springs Mines	39 6	39 6	39 3	38 6*	40 0	40 0
Sub Nigels	14 3*	14 0*	14 0*	14 0	14 6	14 6b
Trans. G.M. Est.	—	9 6*	9 6*	9 9*	—	9 10*
Transvaal Silvers	46 0	45 0*	42 0*	42 0*	43 6*	43 0a
Do. Options	24 0†	22 0	20 6*	20 0*	21 3*	21 6a
Union 5 per cent.	—	£98½	£99¼	£98†	£98†	£97*
Van Ryn Deeps	81 6*	83 0	81 6*	83 0*	83 0*	84 3
Village Deeps	—	10 0*	10 0*	10 0*	10 0*	—
Victory Diamonds	—	50 0†	50 0†	50 0†	50 0†	45 0†
Van Dyks	—	2 6†	—	—	1 0*	—
West Rand Cons.	—	2 6*	2 9*	2 9*	2 6*	—
Western Rand Est.	3 2*	3 0*	4 0†	4 0†	—	—
Witbank Collieries	—	43 6*	43 6*	43 0b	43 6*	43 6*
Wit. Deeps	8 6*	8 6*	8 6*	8 6*	—	8 6*
Wolhuters	3 0*	3 0*	3 0*	3 3*	3 0*	3 0*
West Springs	15 3	15 4*	15 6	15 3	15 0*	14 10½
Do. Options	2 0*	2 1	2 0*	2 0*	2 3†	—
Zaaplaats Tins	6 9*	6 9*	6 9*	6 9	6 10	6 9

*Buyers. †Sellers. aOdd lots. bEx London.

Knights Deep.

The report of the Knights Deep for the quarter ended 30th April, 1920, shows that the development footage accomplished amounted to 1,203 feet; tons milled, 270 600 tons; total yield in fine gold, 49,189·795 ozs.; revenue from gold, £261,046 15s. 3d.; working expenditure, £247,182 16s. 4d.; working profit, £13,863 18s. 11d.; sundry revenue, £614 19s.; total profit, £14,478 17s. 11d.; less expenditure on renewals, £612 10s. 2d.; expenditure due to War, £62 5s.—£674 15s. 2d.; estimated net profit, £13,804 2s. 9d. The amount spent on capital account during the quarter was £1,125 13s. 4d. It should be noted that the value of the gold recovered for the quarter, as included in the above figures, has been calculated at an average of £5 6s. 1d. per fine oz., and does not allow for the gold realisation charges which, owing to abnormally high bank rates, are estimated at about 6s. per fine oz. The average number of natives employed was 6,024 as compared with 5,135 for the previous quarter.

A Universal Motor.

A British factory which was started up during the war for the manufacture of small electric drills has, since the Armistice, turned its attention to the production of domestic electric suction cleaners. A universal electric motor, capable of being run on any supply voltage and on either alternating or continuous current, has been designed on lines which are claimed to be more efficient than any previously adopted. Each of the two hundred parts of the appliance is made to extremely fine limits so as to secure absolute interchangeability, and the factory as a whole is an excellent example of up-to-date mass production.

A NEW OCCURRENCE OF VANADINITE IN THE MARICO DISTRICT, TRANSVAAL.

By P. A. Wagner, D.Eng., B.Sc., F.G.S., and B. de C. Murchand, B.A., D.Sc. (Communicated by permission of the Honourable the Minister for Mines and Industries).

Vanadinite, the chloro-vanadate of lead, is found in the oxidised zone of a number of the lead deposits in the Marico District, its occurrence having been noted by several writers. Actually the mineral has been recorded from the old lead mine on the farm Rhenosterhoek No. 211, the Doornhoek lead mine, the lead workings on the farm Bokkraal No. 300, and the occurrence on the farm Buffelshoek No. 264. It is also stated to have been found in the upper levels of the Witkop mine, but of this the writer could obtain no authentic confirmation. Of the occurrences named only the Doornhoek mine has so far yielded the mineral in commercial quantities. Here vanadinite, in association with cerussite, pyromorphite, minium and massicot,[1] is found lining cavities and vughs in the main ore body. Several of these have been encountered recently, and from the largest of these, a flat inclined cavity about 15 feet in length, it is estimated that fully a ton of vanadinite will be recovered. The mineral occurs in small, well-formed hexagonal chrystals averaging about 1½ millimetres in diameter. Its colour ranges from reddish brown to ruby red and its lustre is sub-adamantine, being superior to that of the Kafferskraal vanadinite to be described below. The new occurrence forming the subject of the present note was discovered about three months ago in the south western corner of the farm Kafferskraal No. 214, situated 11 miles due east of Ottoshoop. It is unique in that vanadinite is the principal ore mineral present, galena, cerussite and the other minerals, which vanadinite accompanies in the occurrences previously mentioned, being present in subordinate quantity only. The deposit is of considerable size as vanadium deposits are reckoned, and there can be no question that vanadinite will shortly figure in the already very long list of the Transvaal's mineral products. It is situated in the uppermost portion of the Dolomite series of the Transvaal System in a bedded deposit of soft blackish brown manganese earth or wad that is generally assumed to have resulted from the replacement of the dolomite along certain lines.[2] Similar manganese earth forms the country rock of the Doornhoek lead mine and of the old lead mine on Rhenosterhoek No. 211. Beds of a highly altered calc-silicate rock containing a good deal of wollastonite underlie and are embedded with the manganiferous earth, and layers of chert also occur in it. Chert and normal dolomite are exposed within a few hundred feet of the deposit on every side. The layers of manganese earth dip down at an angle of about 15° to the east. The bedding planes follow a wavy course and minor folds have in places been superimposed on the main undulations. The vanadinite in crystals and crystal aggregates occurs in seams and layers, up to 18 inches in thickness, following the bedding of the wad, also in irregular pockets cutting across the bedding; in crystals disseminated through the wad and finally encrusting the altered calcsilicate rock already referred to. The ore of the seams is a heavy cellular rock composed of crystals of vanadinite encrusting ferruginous earthy or clayey matter. What the original nature of this ferruginous matter may have been is not clear, but it probably contained both pyrite and galena. In some sections of the deposit the ferruginous gangue is full of minute flakes of silvery white mica. The vanadinite is associated in the layers and pockets with cerussite, galena, pyromorphite, minium and massicot. Pyromorphite and vanadinite are rarely observed in the same specimen, being to some extent segregated into separate patches and masses. This is of importance, as it indicates that portion, at any rate, of the pyromorphite, which is naturally a deleterious constituent in an ore of this nature, could be removed by hand picking. The manner of occurrence of the vanadinite and associated minerals may be best illustrated by a brief description of some of the sections exposed in the workings. These consist of an open cutting, an incline, tunnels, cross-cuts and prospecting pits. On the eastern wall of the open cutting there is to be seen in descending order:

2 inches of red surface soil.

10 inches composed for the most part of hard nodules of lateritic manganese earth.

18 inches of reddish soil with fragments of chert.

3 to 5 inches of cellular vanadinite ore, replaced at one point by galena partly altered to cerussite and encrusted with vanadinite crystals.

18 inches of manganese earth.

At this point the vanadinite layer is practically horizontal. A little farther south it dips to the south and at the entrance to the underground working the dip is to the west at an angle of 15°. At the entrance to the underground working the following section is exposed:

Manganese earth full of small scales and plates of wollastonite...	1 in.
Vanadinite ore	... 3 in.
Manganese earth with remnants of altered shaly rock ...	... 6 in.
Vanadinite ore	... 2 in.
Manganese earth	... 1 in.
Vanadinite ore	... 1 in.
Decomposed calc-silicate rock	... 8 in.

The two upper seams of vanadinite ore are seen a few feet west-south-west of this exposure to coalesce, giving rise to a single seam about 4 inches thick, which itself gives out completely a little farther on, being replaced by another seam. The maximum observed thickness of the vanadinite ore in any single layer is 18 inches. In some sections the aggregate thickness of the several layers is over 2 feet.

THE ORE MINERALS.

Of the ore minerals present galena occurs in the vanadinite layers in irregular flattened masses up to 4 inches across. These invariably show marginal alteration to massive dark coloured cerussite, and in some specimens only small remnants of the galena remain. Cerussite also occurs in well-formed tabular crystals. Minium, the red oxide of lead, was noted as an encrustation on brown clayey matter impregnated with cerussite and earthy massicot—the yellow oxide—is also present in some sections of the deposit. Pyromorphite occurs in well-formed prismatic crystals up to ⅜ inches in length, generally aggregated in parallel or branching groups, also in irregular botryoidal masses and crusts. The prism faces of the crystals are generally striated parallel to the verticle axis. The colour of the mineral ranges from yellow in some of the botryoidal crusts, through greyish green to dark olive green. The lustre is resinous. The vanadinite forms sharp edged hexagonal crystals ranging in size from almost misrocopic dimensions to a diameter of quarter of an inch. The crystals as a rule are tabular parallel to (001) or equidimensional, crystals of prismatic habit also occur, but are rare. The following forms are present: (0001), (1010), and (1011). The pyramidal faces are very small, being just visible under a hand lens*. The colour of the mineral varies, and may be yellowish-brown, brown, orange-red or deep brownish-red. The orange-red and brownish-red varieties are translucent. The lustre is resinous, being inferior to that of the Doornhoek vanadinite. Here the result of the chemical analysis of picked crystals of the mineral is given.

The vanadinite layers have been proved to extend over an elliptical area measuring approximately 120 feet by 45 feet, the longer axis of the ellipse striking a few degrees west of north. The greatest depth attained in the workings is 35 feet. The vanadinite does not appear to extend below this depth; the layers becoming thinner and eventually giving out as they are followed downward. It is estimated that several hundred tons of the mineral are actually in sight. Vanadinite is also exposed in a prospecting shaft situated about 50 feet east-north-east of the entrance to the main workings and is said to have been found in an excavation situated some little distance to the north of the main working. The presence of the pyromorphite notwithstanding, the exploitation of the deposits should yield handsome profits, as conditions are favourable to cheap mining and the ore is very amenable to concentration, tests carried out in Mr. Blane's mill on Witkop having shown that there is no difficulty in obtaining, by simple treatment on jigs and tables, a product containing from 14·7 to 16 per cent. of V_2O_5.

---

[1] So far as the writer is aware, the occurrence of this mineral in the Doornhoek Mine has not hitherto been recorded. It is found as a secondary incrustation on minium and cerussite encrusting galena.

[2] *Cf.* Humphrey, A. W., *Report of the Geological Survey, Transvaal*, 1908, p. 152

*For the identification of the pyramidal faces the writer is indebted to Professor A. Young, of the Capetown University.

Coal Conservation.

Sir Dugald Clerk, in a paper on "Coal Conservation in the United Kingdom," read before the Institution of Civil Engineers in mail week, made the suggestion that non-condensing steam turbines and steam heating for a city was essential if the Coal Conservation Committee's aim of economy for power and heat was to be attained, and stated that by the adoption of a certain steam power and heating system there could be saved one-half of the present fuel used for domestic purposes. That system, being operated from boilers supplying the engines with steam containing 80 per cent. of the heat of combustion of the coal used on the boiler furnaces, and with 10 per cent. deducted for motive power, would leave 70 per cent. of heat still available, which, after distribution and use, could give an efficiency of 50 per cent. That meant 35 per cent. of the original heat of the coal would be available for heating rooms and domestic cooking. The coal at present used for domestic purposes gave a combined efficiency not exceeding 15 per cent.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Far East Rand Geology.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—It would be very interesting if you could give your readers a little more of Mr. G. A. Denny's paper, "Some Geologic and Economic Aspects of the Far East Rand Syncline" (sic) alluded to in your last issue, as that gentleman was the first culprit to dub Bird Reef series, on which he sank the Cinderella Deep shaft, "Kimberley series"—which latter only happens to be 1,000 yards away to the south. The same mistake has been perpetuated by all other mining engineers and geologists in the Heidelberg district, under discussion at the present time, and in consequence not one of them dare contradict the other, hence the public will never be able to get at the true version of things. Although I may disagree with Mr. W. E. Bleloch in a few matters of detail, I reckon that his geology is "gospel truth" compared to the "terminological inexactitudes" of the geologists of the so-called orthodox school—and more especially those of the Geological Survey. Like myself, Mr. Bleloch gives the Rand the Blue Sky, Van Ryn, and Du Preez series of reefs, underlying Main Reef series—thereby adding three payable series to the Rand. Other geologists cram the lot into Main Reef series, and even less out East! Nor does the Geological Survey hesitate to call my dear old Black Reef, of the Black Reef series, "Main Reef Leader with a shale footwall," and dispose of square miles of it to the public with their Main Reef brand upon it.—Yours, etc.,

SCOTT ALEXANDER,
"Rand Stratigraphist."

Johannesburg,
June 9th, 1920.

The Weight of the Carat.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—I understand that, some time ago, America and the chief European countries agreed to revise the weight of the diamond carat and decided upon a uniform weight of 200 milligrams. As far as I know the Union of South Africa is not a party to this but still adheres to the old weight. With a view to ascertaining the exact position, I called upon a Government official, who should be able to give such information, but I was so rudely received that I beat a hasty retreat, sadder but no wiser than before. I was the more surprised at my reception, because I always receive the greatest courtesy from any official in the Mines Department when seeking information which they can supply. I shall be glad if you can find room for this note, in the hope that some reader of your esteemed *Journal* may be able, as a matter of some public interest, to inform us as to the recognised weight of the carat in the Union, and whether it is correct that the U.S.A. and Europe have agreed to the 200 milligrams' standard.—Yours, etc.,

LEWIS WATKINS.

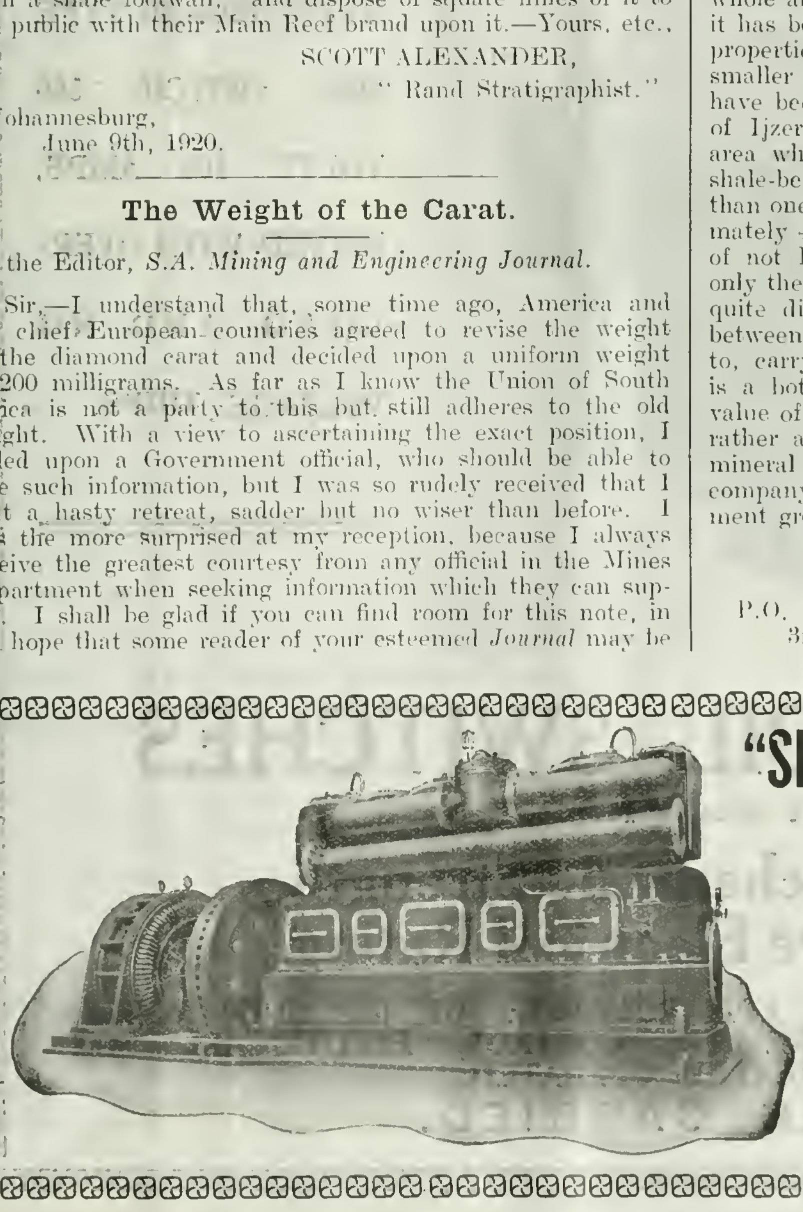
African Oil Corporation.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—We are instructed to point out that in your issue of the 29th May there appears a prospectus of the South African Lubricant and Chemical Works, Ltd., in which a comparison is made between the oil-shale areas held by that company and similar areas held by the African Oil Corporation, Ltd. Referring to a recent report upon the properties of the last-named company by Mr. Mills Davies and their oil-shale values, the prospectus says: "Mr. Davies' estimate is based upon an acreage of 640 with a seam of 22 inches, while this company (the South African Lubricants and Chemical Works, Ltd.) has an area of 5,252 acres, with much thicker seams." This statement is somewhat misleading; the African Oil Corporation, Ltd., holds mineral leases over nearly 10,000 acres in one block. The report states that the 640 acres, which is merely the portion already sampled and valued, "represents about one-fifth of the whole area between the outcrop of the main shale, as far as it has been traced, but not valued, and the boundary of the properties to the dip of that outcrop. It constitutes a still smaller proportion of the main shale which will altogether have been located when Virginia and the remaining portion of Ijzermijn have been prospected. In other words, an area which is considerably less than one-fifth of the total shale-bearing area of the company, and is probably not more than one-eighth of that area, contains by calculation approximately 4,000,000 tons of payable shale of an estimated value of not less than £13,000,000." The 22 inches comprises only the upper portion of the shale seam, as the report states quite distinctly, the seam itself having a thickness of between 5 and 6 feet. In addition to the 22 inches referred to, carrying 27·2 gallons, according to the analyses, there is a bottom portion, averaging 9 inches, with an average value of 16·2 gallons—an estimate which is considered to be rather a low one. Besides the large acreage held under mineral leases by the African Oil Corporation, Ltd., the company possesses 29 claims on oil-shale bearing Government ground in Northern Natal.—Yours, etc.,

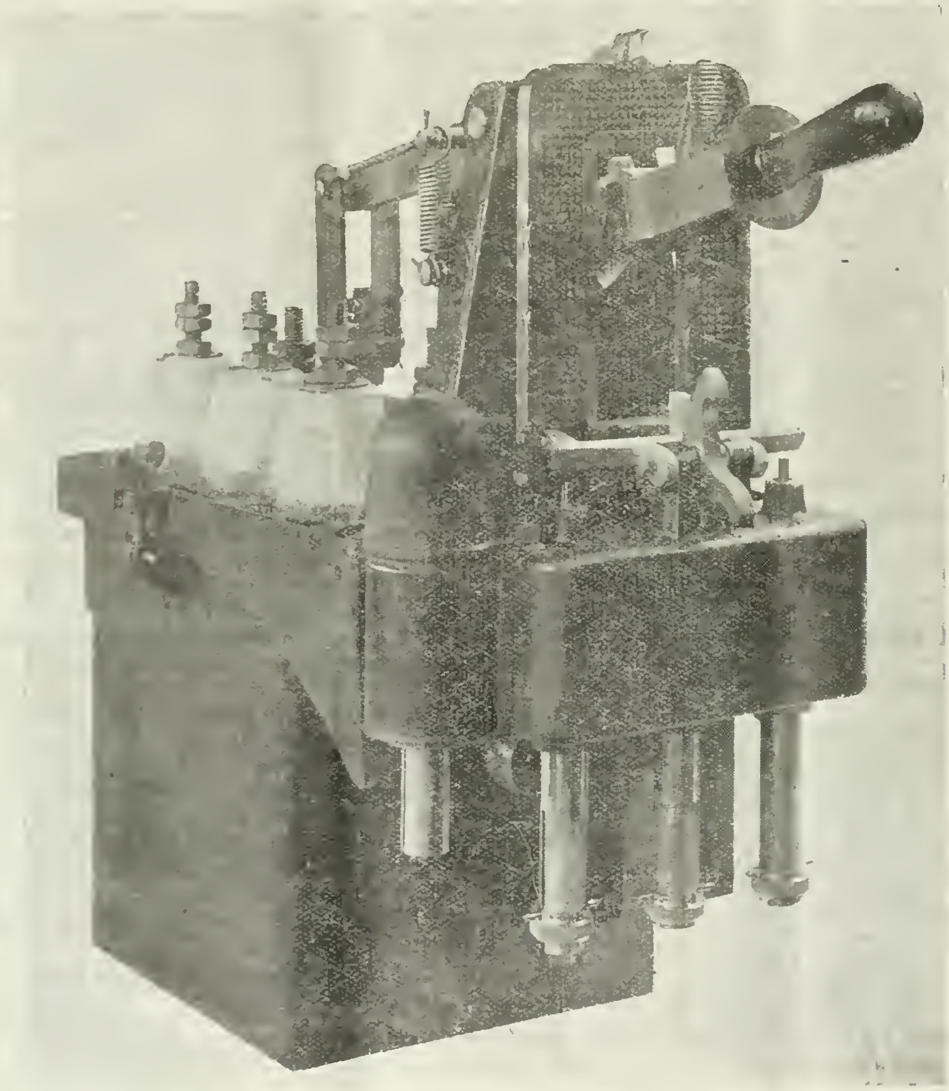
F. W. DIAMOND & ENGLISH,
Secretaries.

P.O. Box 1196, Johannesburg.
3rd June, 1920.



"SENTINEL" Air Compressors
are characterised by
High Efficiency, Accessability, Simplicity and Reliability.
These can be delivered from stock.
SOLE AGENTS:
The Griffin Engineering Co. Ltd.
94 MAIN STREET, JOHANNESBURG.

THE
British General Electric Co., Ltd.
JOHANNESBURG.
P.O. Box 2406.
Telegraphic Address: "Current."
SOUTH AFRICAN BRANCH OF
The General Electric Co., Ltd., England.



WITTON

SWITCHBOARD TYPE OIL SWITCH, 500 VOLTS, 100 AMPS, FITTED WITH OVERLOAD AND NO VOLTAGE TRIPS.

WITTON OIL SWITCHES
are notable for
Sturdy Mechanical Strength,
Conservative Electrical Rating.

STANDARDISED IN ALL SIZES FOR VOLTAGES UP TO 60,000 VOLTS. CAN BE SUPPLIED FOR REMOTE CONTROL, ELECTRICALLY OR MECHANICALLY OPERATED.
STOCKS CARRIED.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Cost of Living—Drop in Mealies—The Economic Wave—Oregon Timber Arriving—Iron, Steel and Electrical—Second Hand Yards—Mines Keeping Power Machinery for Base Metal Propositions.

The best news we have had for a long while is that mealies have fallen within a week from 28s. to 21s. per 200 lbs. The reason is that the banks are not advancing funds to the country storekeepers, to say nothing of speculators who are out of favour just now, not only with the banks but with everybody. Many storekeepers also come under that category, as they square accounts with the farmers with the mealies brought in for goods received and then only obtain in settlement as little money as the various circumstances allow. The mealies are then kept for better markets, which, of course, is all in the way of trading on the turnover; but to-day the banks will not assist, hence a very satisfactory drop, which is practically none the worse for the farmer, and all the better for the cost of living. With maize at 21s., the cost of the present mixture of flour and mealie meal for the 2lb. loaf should easily come down from 1s. to 9d., which would be a wonderful relief during these winter months. Hence this is one of the few pointers for a decrease in the cost of living, which everybody is praying for. The wheat and flour question is a very difficult one, as there is a world-wide shortage, and South Africa is not a prolific wheat growing country, and why should anyone grow wheat when other cereals or crops are more payable? Hence it is a question whether the Government cannot assist by artificial manures and some other encouragements. Not that the Government should nurse every industry, but when the British Government can give many millions as a subsidy for bread it becomes a matter of practical politics within our Government's sphere. Remember it was the "Wheat Pit" of Chicago that gave the vim to covering the virgin soil of America with the golden grain, as it secured a ready market to the farmers. Therefore a minimum price might be fixed for our growers for a year or so, as the people must have bread.

THE ECONOMIC WAVE.

A commercial broker in the mining and hardware trade anticipates lower prices, as he remarked that the whole world is up against the big values, simply because it hurts people to live, although they work hard, and even in many cases get more money, yet they are no better—but often worse—off. A leading American import house has not had any orders for the past fortnight, and in some cases people are anxious to cancel orders already accepted in New York, especially for soft goods. The steel trust will not accept orders for guaranteed delivery, and one toy factory has sufficient orders to last for three years. Already there are six or seven steamers on the way from America and Canada, full up with general cargoes, as well as several timber ships from the Oregon district. The manager remarked that the suddenness of the drop was due to the cable in reference to some of the departmental stores being satisfied with a 10 per cent. profit instead of the recognised 50 per cent., on purpose to push a sagging business into something like activity. All this on account of the economic wave there, and our merchants are not happy about South Africa entering into that mode of saving, as it is catching on in various towns in the Union. Undoubtedly much can be done for some rigid economy, and if only the wave really catches on it will bring everything down, and so assist our paramount industry of the mines. In some cases the storekeepers will have to reduce their profits to catch customers, and if only some sane way can be found to open trading with Russia the world will be helped considerably. Mr. D. C. Greig, the late chairman of the Johannesburg Stock Exchange, gave an interesting lecture on the subject of the depressing bank exchanges between here and London. He recommends Imperial treasury notes on a similar plan as that adopted by the Egyptian Government. A very interesting lecture, and something done, because it is keeping an all important matter very much alive. In fact, the whole Union is starving to know what the Government is doing to obviate such a trade catastrophe, as the absurd bank rates for such a creditor country as ours.

TIMBER AND BUILDING MATERIALS.

A building contractor says that it approximately takes two-thirds in wages for the best class of buildings and half for a cottage. There is still a shortage in timber, although a sailing timber ship from the Oregon has relieved the position somewhat. The price of Oregon pine is 10s. 6d. to 11s. per cube. Baltic deals 2s. 2d. to 2s. 4d., and 2s. 6d. for the best long lengths. Floorings 11½d.; ceilings 7½d

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:

KELLY, BURNIE & CO.

Box 5260. The "KELCO" People. Phone 4333.

Corner Polly and Albert Streets, Johannesburg.

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

to 7¾d., roofing iron 1s. 6d. to 1s. 8d. per foot. The South African factories are making sufficient doors, windows, and joinery fittings. A few doors and windows come from oversea, but the windows are dearer than those made here, when the damage and breakages are taken into account. Now and again there has been trouble between the employers and employees, but at the moment things in that respect are more harmonious. Timber is higher than expected, owing to higher costs, higher freights, and costs of living. It may come down in July and August, when shipping arrives freely from the Baltic, and may be a lesser demand through inactivity in erections, will cause a lowering of prices, as the cost of timber is great, and financial exigencies may come into play, as much more capital is required to carry on, and so a certain quantity may come under the hammer. Turpentine is almost unobtainable, as well as plate glass. Linseed oil, 115s. raw and 120s. boiled. White lead, 95s. to 110s., according to quality. Cylinder oils, 42s. 6d. to 47s. 6d.; engine, 38s. 6d. to 45s. for 2—4's. Best castor oil, 96s. to 100s.; medical, 110s. to 130s., 2—4's; resin, 8d. to 9d. lb. Grease, 42s. America and 25s. to 30s. local.

IRON AND STEEL AND ELECTRICAL.

A telephonic message says that Vereeniging steel is being raised in price, and particulars will follow. Steel plates are the feature, as the demand is great for the smaller thicknesses, the rates varying from 72s. 6d. to 50s. per 100lbs. There are big stocks of 4lb. hammers at 4d. lb. The demand for bar iron and steel is still good from all parts of the country, at the same level of prices. The demand for hollow steel—and, in fact, all special brands of steel—has slackened off, as no large orders are being placed, in view of the stocktaking for June half year. Electrical goods are coming forward more freely, therefore stocks are getting better assorted. Lamps advanced to 28s. per dozen from June 1st. Ceiling roses and counter-weights are practically unobtainable. An importer in a fair way of business thinks that values must come down, as a general statement, before very long.

SECOND-HAND YARDS.

According to semi-official information the lower grade mines closing will not dispose of their power plants, such as engines and boilers, also the best spares and shop tools. These things will be utilised for opening tin mines and base metal propositions. The stores, spares, and up-to-date steel drills and their parts will be taken into stock by other mines, which is a reason for the paucity of buying by the live mines. This is not satisfactory information for the second-hand dealers, but it is a bright spot for the future of our base metal propositions. There is a fair demand for all kinds of piping, especially 4in. and 6in. for irrigation purposes. Engine tubes are scarcer than ever. The price of good second-hand pipes is: 1in., 8½d. per foot; 2in., 1s. 6d., very scarce, but a quantity recently arrived at the coast; 3in., 3s. 3d.; 4in., 3s. 6d.; and 6in., 6s. 6d., but getting very scarce. There is not a great demand, but it is healthy for the agricultural interests and the alluvial diamond fields.

HUME PIPES.

This company has secured an order at the coast for the Government to supply a sufficient number of pipes of about 4in. diameter for carrying the telephone cables. A special contrivance has been arranged to make air-tight connections. If everything is satisfactory this will no doubt mean a very large order and a replacement of the imported steel pipes. The Hume people have recently acquired the Bellville Brick and Gravel Company near Capetown, and will erect a Hume pipe factory on the same site. The Bellville works are extensive, and are noted for their products of bricks and tiles in the Cape Province. The company has recently increased its capital from £100,000 to £250,000. It has issued 100,000 shares at 23s. The Central Minings have agreed to take the whole or any portion of this issue. In future the Board will have authority to issue another 50,000 shares at discretion.

OUR FACTORIES "FURNITURE."

If one only looks around and sees our new factories erected since the War there is no reason to take a pessimistic view of our future, with its immense rosy probabilities. We have had mining troubles before, and cannot get away from them. There was a bother over the deep levels, also the problematical payability of the mines when the cyanide process was introduced and saved the situation. To-day there are a few mines closing, but one can rest assured that all the worry and trouble of the matter will not turn out so badly as some of our croakers contemplate. This is the time to have a good heart, and do the work available, and not shirk one's responsibility. For example, what a prosperous time the furniture manufacturing business has been during the latter part of the War period and since. Simply because of the difficulty of obtaining furniture from oversea, and now that is impracticable, because of the high wages in Britain and Europe, also the cost of seasoned woods and their scarcity. At the present time the price of furniture in London is at least 100 per cent. over Johannesburg values. We have factories all around our coast, as well as throughout the inland towns. The question of labour is a big one, as practically the greater proportion of the cheaper furniture is made at the coast, where three parts of the labour is coloured. It is, however, skilled and experienced, as the men have been in the factories many years, and naturally the coast is the home of the furniture industry, and chiefly based upon the present labour conditions, since the colour bar does not exist there. Timber is a very difficult proposition, as most of the hardwoods have up to now been imported. But Rhodesia and the northern parts of the Transvaal are supplying woods that take time to season, and are anything but easy to work, and this will remain so until we can obtain the latest and best hardwood working machinery from England or America. We now use Indian teak, Japanese oak, and American pines and other woods. There is no question but that South Africa has a big hold over this ever-increasing industry, and it lies in the hands of the manufacturers and workmen as to whether European and American makers can ever make much headway in this country again, excepting in very special and unique workmanship. Undoubtedly South African furniture made of our native woods will be in demand all the world over, when the proper machinery is available.

Witwatersrand Deep.

The estimate of results at the Wit. Deep for the month of May, 1920, is as under: Tons milled, 32,000; gold recovered, 7,547·505 ozs.; average number of stamps running, 200; stamps running time, 22·5 days; tube mills, 5; development footage, 451. The working expenditure, including head office charges, for the month is £40,887, or 25s. 7d. per ton. The estimated working revenue, based on an estimate of £5 5s. per fine oz., is £36,245, or 22s. 8d. per ton. The estimated working loss is £4,642, or 2s. 11d. per ton. The estimated working expenditure as above includes bank gold realisation charges amounting to £3,302 0s. 8d., calculated at 8s. 9d. per oz. The loss for the month is due to the temporary fall in grade owing to the impossibility of hauling sufficient tonnage from the main incline shaft whilst the final and material equipment of the shaft for the new hoist was being completed. It is hoped that the new hoist will be installed within a fortnight.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

Box 3807. **Tel. 5892.**

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent

The Week's Meetings.

WITWATERSRAND MINE.

At the annual meeting of shareholders of the Witwatersrand Gold Mining Company, Limited, held on June 4, Mr. John Munro, the chairman, stated that the ore crushed at the mine during the year amounted to 396,950 tons as compared with 428,550 tons crushed during 1918. The percentage of sorting was lower, being 7.83 as against 10.03. The average amount of gold recovered per ton was 5.527 dwts. as compared with 5.427 dwts., which was the amount recovered for the previous year. In 1918 the average value of the gold recovered per ton amounted to 23.179s., whereas for 1919 it was 26.050s., the difference being chiefly due to the premium which was obtained on gold sold after the 24th July. The working costs increased from 19.264s. per ton in 1918 to 21.547s. per ton for the year under review, so that, although a slightly increased working profit was made at £89,375 19s. 11d., had it not been for the premium on gold, amounting to £48,385 17s., the profit would have been substantially lower.

Stores on hand and in transit had a total value of £67,209 at the end of 1918; this was reduced to £47,760 by the end of the year under review.

Capital expenditure amounted to £26,789, which was chiefly spent on sinking the southern incline and on the 28th level pump station.

Directors were able to declare two dividends of 5 per cent. each to shareholders registered on the 30th June and 31st December respectively.

The southern incline shaft was sunk 335 feet, which brought it 108 feet below the 28th station. A total of 9,742 feet of development was accomplished as compared with 7,710 feet during the year 1918. The results obtained were not altogether satisfactory, and the ore reserves in the mine were reduced from 1,390,000 stoping tons at the end of the previous year to 1,142,500 tons at the 31st December, 1919. There was also a slight reduction in the value of the reserves from an average of 6.0 dwts. per ton to an average of 5.9 dwts. per ton. The ore in the older section of the mine was rapidly becoming exhausted, which meant that before long the ore for the mill would have to be all drawn from the southern section. In this part of the mine the width of the reefs tended to get smaller, and there would not be the same amount of reclamation available.

The profit made during the first four months of the current year was practically at the same rate as in 1919, but the working costs had increased, the average being 24.094s. per ton. This increase was due to increased payments to employes—both workmen and staff—to increased contributions under the Miners' Phthisis Act of 1919, and also to a very substantial increase in the rate of exchange. It should also be mentioned that according to the system obtaining in the Barnato Group of Mines the expenses of gold realisation and exchange were always charge to working costs. During the early part of this year the exchange on sight drafts amounted to ¾ per cent. At the beginning of March it was raised to 4½ per cent., and subsequently further increases were made, so that to-day it stood at 8½ per cent. Therefore exchange alone to-day would add 2s. 4d. per ton to the working costs of the mine if the full value of the gold were drawn on this side.

The mine suffered very severely from native labour shortage during the year, when the average number on the mine amounted to 2,219; to-day the position in this respect was very much improved. There were now 2,784 natives employed which made the position easier.

The adoption of the report and accounts was moved and passed unanimously without discussion. The appointment of Mr. J. G. Lawn as director was confirmed.

CONSOLIDATED LANGLAAGTE MINES.

The annual general meeting of the Consolidated Langlaagte, Ltd., was held on June 4, in the board room, Consolidated Buildings.

In moving the adoption of the report and balance sheet, the Chairman, Mr. John Munro, said that the quantity of ore crushed amounted to 507,800 tons, being an increase of 4,500 tons as compared with the previous year. The yield in gold was 5.887 dwts. per ton, which was practically the same as the previous year, when the yield amounted to 5.910 dwts. per ton. The value of the gold recovered averaged 27.679s. per ton as compared with 25.155s. per ton in 1918; the difference being due to the fact that a premium was obtained on the gold sold after the 24th July. The working costs were higher, owing partly to the higher payments to the workmen and heavier contributions on account of miners' phthisis.

The total working profit, which included £65,658 18s. 4d. premium on gold, amounted to £185,155 12s. 4d. as compared with a profit of £159,231 19s. 2d. made during 1918. The stores carried on the mine at the close of 1918 stood at £80,888, at the end of the year under review they had been reduced to £48,815.

Your directors were able to pay two dividends, amounting to 12½ per cent., which absorbed £118,750. On the 28th ultimo the usual annual drawing of debentures took place, and the bonds redeemed will be payable on the 1st July next. The liability under this head will then be reduced to £50,000.

The development totalled 16,245 feet as compared with 13,814 feet in 1918. The percentage payability of the footage sampled on reef was 41.69 per cent. as compared with 46.27 per cent. during the previous year. The ore reserves at 2,090,300 tons were practically the same in quantity and slightly higher in value than at the end of 1918.

For the first four months of this year crushing has been at the same rate as last year; revenue is somewhat higher, but working costs have substantially increased, chiefly on account of increased payments to all employes. The profits declared total £42,625, but the actual profit will probably be slightly higher than this figure as the gold not having been sold when the profits were declared, its value can only be estimated. The premium ruled high in January and February, but since then it has fallen, and and the increased payments to employes mean that decreased profits are being made.

Towards the end of the year under review the sinking of the west shaft was resumed, and to-day the sinking of the east shaft has been recommenced. These shafts will be pushed down as rapidly as possible as there is still a considerable area of your property unexplored

The south reef appears to show a tendency steadily to decline in value, but some very good main reef leader has been met with, and it is probably chiefy to the main reef leader that we have to look for values in the lower parts of the mine.

The native labour position was slightly better than during the previous year, and the supply at the moment is adequate.

The motion was carried. Messrs. J. H. Crosby and J. Friedlander were re-elected directors, and the retiring auditors were reappointed.

LANGLAAGTE ESTATE.

At the annual meeting of shareholders of the Langlaagte Estate and Gold Mining Co., Ltd., held on June 4, Mr. John Munro, the chairman, stated in his report that the quantity of ore crushed during the year was 475,480 tons, which was a decrease on the 533,690 tons crushed in 1918. The recovery, which averaged 5.850 dwts., was a slight improvement on the previous year, when the average recovery was 5.706 dwts. The average value of the recovery in 1918 amounted to 21.282s. per ton, whilst, owing chiefly to the gold premium which was obtained from the 24th July, the value for 1919 averaged 27.354s. per ton The working costs, which in 1918 averaged 19.071s., rose to an average of 21.172s. for the year 1919, an increase of 2.101s. per ton. The working profit for the year, which included £58,047 6s. 9d.—the estimated premium on the gold realised—amounted to £146,989 2s. 10d., as compared with £139,082 16s. 5d. in 1918. Two dividends representing 15 per cent. on the issued capital of the company, and absorbing £132,975, were declared during the year. Stores in hand and in transit were reduced from £78,980 at the end of 1918 to £52,277 at the end of the year under review. Capital expenditure amounted to £28,158, which was spent chiefly on shaft sinking, underground pumps, and new staff houses. Certain old plant was sold, and realised £18,437.

The development footage accomplished was 10,576 feet, as compared with 8,291 feet for the previous year, and the values, although not so high as in the previous year, were satisfactory. The ore reserves at the end of the year amounted to 1,002,400 tons of an average value of 6.5 dwts. over a stoping width of 52 inches, which was slightly less than at the end of 1918, when they stood at 1,036,200 tons of the value of 6.9 dwts. over a stoping width of 52 inches. The set-back caused by the floods of 1918 had now been largely overtaken, and it was hoped this year to improve the position of the mine in regard to the ore reserves.

For the first four months of the current year working costs had risen to 27.740s. per ton, an increase of 6.568s. per ton. This increase was mainly accounted for by the increased payments to employes; increased contributions under the Miners' Phthisis Act of 1919, and also to the increase in the rate of exchange. According to the system obtaining in the Barnato group of mines, the expenses of gold realisation and exchange were charged to working costs. At the beginning of the year the bank exchange on sight drafts amounted to ¾ per cent. At the beginning of March it was raised to 4½ per cent., and subsequently further increases were made until to-day it stood at 8½ per cent., and is equivalent to an addition of 2s. 7d. per ton to the working costs of the mine if the full amount of the revenue from gold were drawn on this side.

During the year the mine suffered very severely from shortage of native labour, and, while the position was now greatly improved, the mine was still short of the number of natives required. Two second-hand air compressors were being installed, so as to put the mine into a better position to meet any shortage of natives.

The sinking of the Hebbard shaft was restarted towards the end of August, and 157 feet were sunk, bringing the shaft to the horizon of the 23rd level at a depth of 3,140 feet. In the main incline where sinking was restarted in July, an advance of 282 feet was sunk, making the total depth of the shaft at the end of the year 2,702 feet. The sinking of these shafts was being pushed forward as rapidly as possible.

The adoption of the report and accounts was passed unanimously without discussion.

The appointment of Messrs H. A. Rogers and J. G. Lawn as directors was confirmed, the retiring directors being re-elected.

GOVERNMENT AREAS.

At the annual meeting of the shareholders of the Government Gold Mining Areas (Modderfontein) Consolidated, Ltd., held on June 4, Mr. John Munro, the chairman, stated that again it gave him pleasure in congratulating shareholders on the continued success of the company. The quantity of ore crushed was 1,361,000 tons, being 57,500 tons in excess of that crushed in 1918 and the grade was .5 of a dwt. per ton higher, due in part to increased surface sorting and reduction of the external waste width in stoping. The working costs were 1.29s. higher, due chiefly to increased wages and extra payments under the Miners' Phthisis Act. Owing to the higher value of ore crushed and increased tonnage, the working profit again showed a substantial improvement, and amounted to £1,246,875 1s. 11d., which included the premium on gold sold, amounting to £249,857 18s. 5d. This compared with a working profit of £876,326 11s. 2d. for 1918.

Dividends of 17½ per cent. and 20 per cent. absorbing £525,000 were declared payable to shareholders registered on the 30th June and 31st December, 1919. respectively, and £352,589 3s. was carried forward to this year's account, as compared with £271,855 18s. 2d. from the previous year.

The estimated share of the profits for the year payable to the Government in terms of the lease amounted to £605,370, and was equivalent to 50,3 per cent. of the annual profits after the deduction of the annual allowance for capital expenditure was made.

The annual allowance on account of capital expenditure for 1918 amounted to £58,174, based on a life of 22 years, but early in 1919 the Government Mining Engineer made a revision, and the official life of the mine was fixed at 25 years from the 1st January, 1919, which had the effect of bringing down the annual allowance to £44,887.

The Exemption Not Valid.

In connection with the levy by the Transvaal Provincial Council, he said that after taking the opinion of counsel the directors were advised that, notwithstanding the mining lease with the Government of the Union of South Africa, the company could not claim exemption from this Provincial taxation. The amount estimated as due, namely: £8,131 17s. for 1918 and £10,825 6s. 6d. for 1919 had been paid and was duly reflected in the accounts. The capital expenditure was £22,540, the chief item being £14,769 for additional dwelling houses, while one wing of the north side boarding house was converted into a recreation hall for employes on the northern portion of the property. The stores on hand and in transit amounted at the end of 1918 to £178,781, which was reduced to £101,442 at the end of the year under review.

Reclamation.

During the year a system was instituted of reclaiming the broken tonnage left behind in the stoped-out areas. The results were very satisfactory, and the tonnage obtained was approximately 10,000 tons per month. The areas in question were lashed out and thoroughly swept. and finally washed with water under pressure to recover all the fines. It was only necessary at a later date to draw the pillars, then all the ore in a given area would be recovered. Development results were satisfactory. The payable development accomplished during the year showed 17.4 dwts. over 50 inches as compared with 16.1 dwts over 43 inches during the previous year, the footage being practically the same as for last year.

The distribution of the ore reserves, which at the end of the year were 11,001,700 tons, at an increased value of .6 of a dwt., with one inch reduction in the stoping width, as compared with the reserves at the end of 1918, was wide. The policy of the company was at present not to aim at increasing the ore reserves, but to provide sufficient stope faces to ensure an adequate supply of average grade ore to the mill under all circumstances, and to explore those sections of the mine about which little was known.

The working profit made during the first four months of the current year amounted to £444,967. The working costs had increased, the average being 23.458s. per ton. This increase was due to increased payments to employes—both workmen and staff; to increased contributions under the Miners' Phthisis Act of 1919, and also to a very substantial increase in the rate of exchange. At the beginning of this year the exchange on sight drafts amounted to ¾ per cent. In the month of March it was raised to 4½ per cent., and subsequently further increases were made, so that to-day it stood at 8½ per cent. Therefore exchange alone to-day would add 3s. 5d. per ton to the working costs of the mine if the total value of the gold sold were drawn on this side.

The average number of natives employed underground showed an increase of 506 per day over the year 1918. and the number was steadily increasing. The mine was now very popular with natives, which promised well for steady production.

Crushing Figures.

The plant had a milling capacity of 135,000 tons per month, which equalled 5,000 tons per working day. It was pleasing to note that during the month of April of this year 125,000 tons of ore were crushed in 25 working days, which was the limit of the plant. With the present sound position of the mine, and, given an adequate supply of native labour, it was quite possible to continue to work to the full capacity of the plant.

The report and accounts were passed at the conclusion of the chairman's speech.

NEW UNIFIED.

The annual meeting of the New Unified Gold Mining Company was held on June 3. In moving the adoption of the report and accounts, Mr. John Munro said the quantity of ore crushed during the year was 141,400 tons, which was a slight decrease on the amount of 150,900 tons crushed in 1918. The value of gold recovered was, however, slightly better at 4.709 dwts. per ton as compared with 4.470 dwts. per ton in the preceding year. The value of the recovery in 1918 was 19.011s. per ton, whereas, owing chiefly to the premium on gold, it averaged for the year under review 22.172s. per ton. The working profit for the year, which included £14,930 17s. 5d.—the premium on the gold sold subsequent to the 24th of July—amounted to £36,338 1s 11d., as compared with a profit of £27,879 15s. 5d. for the year 1918.

During the year two dividends of 5 per cent. each, absorbing £25,000, were declared. The working costs amounted to 17.033s. per ton, an increase of 1.77s. per ton over the average costs for the previous year. For the first four months of the current year the working profits have been substantially the same as for 1919, although they will probably prove slightly higher when the actual value at which the gold has been sold is known. The working costs show a further increase of 5.508s. per ton, and have averaged 22.541s. per ton crushed. This increase is partly accounted for by the increased payments to employes, increased contributions under the Miners' Phthisis Act of 1919, and also to the increase in the rate of exchange. Stores in hand, and in transit, were reduced from £15,821 at the end of 1918 to £8,681 at the end of the year under review. There was no expenditure on capital account.

Practically no development remains to be done on the mine, and the ore reserves remaining at the end of the year were calculated to amount to 149,000 stoping tons, having an average value of 6.5 dwts. over 47 inches of reef. In addition to this ore there is still a considerable amount to be won from reclamation in old areas of the mine, provided that the level of working costs allows this work to be carried on without loss.

The report and balance sheet were adopted.

NEW PRIMROSE.

The annual general meeting of shareholders in the New Primrose G.M. Co. was held on June 3, in the Consolidated Buildings, Mr. John Munro presiding.

In moving the adoption of the reports and accounts, the chairman said:

The ore crushed at your mine during the year amounted to 210,900 tons as compared with 211,700 tons in 1918. The average quantity of gold recovered per ton was 4.583 dwts., which was a slight increase on 4.125, the value of the gold recovered in the previous year. In 1918 the average value of the gold recovered amounted to 17.593s per ton, whereas it was 21.63s. in 1919, the difference being chiefly due to the premium obtained on gold sold after the 24th July. The working costs increased from an average of 16.317s. per ton in 1918 to 17.707s. per ton for the year under review.

The working profit of £41,379 9s. 9d. for the year included the sum of £21,935 4s. 7d., the estimated premium on the gold sold. To shareholders registered on the 30th June and 31st December dividends totalling 10 per cent., absorbing £32,500 were declared. The profit made during the first four months of the current year amounted to £4,216, and the working costs increased to 20.615s. per ton. This increase is due to increased payments to employes both workmen and staff to increased contributions under the Miners' Phthisis Act of 1919, and also to a very substantial increase in the rate of exchange. It should be mentioned in this connection that, according to the system obtaining in the Barnato Group of Mines, the expenses on gold realisation and exchange are added to working costs. In the early part of this year the exchange on sight drafts amounted to ¾ per cent. In the beginning of March the rate was raised to 4½ per cent., and subsequently further increases were made, so that today it stands at 8½ per cent., and the exchange alone would to-day add almost 2s. per ton to the working costs of your mine if the full value of the gold sold were draw against.

Shaft sinking has long since been completed on your property, but the work of keeping the shafts on the Primrose and May Deep sections in an efficient state was maintained throughout the year.

No development remains to be done on the south reef, but progress was made in developing the unexplored areas of the main reef leader, which, in spite of its patchy nature, justifies the continuance of developing this reef.

The ore reserves at the end of the year stood at 45,000 stoping tons of an average value of 6.4 dwts. as compared with 65,690 stoping tons of an average value of 6.1 dwts. at the end of 1918. It will thus be seen that the continued working of your mine depends very largely on reclamation work. There are still certain areas to be worked over, but it cannot be hoped that anything better than a low grade ore can be obtained on the average, so that the extent to which this work can be carried on is influenced on the one hand by the level of working costs and, on the other, by the extent of the premium on gold, but shareholders can rest assured that every effort will be made to keep the mine running as long as possible.

The motion was carried unanimously, and the meeting terminated with the re-election of the directors and reappointment of the auditors.

VAN RYN DEEP.

At the annual meeting of shareholders of the Van Ryn Deep, Ltd., held on June 4, Mr. John Munro, the chairman, stated in his report that the amount of ore crushed during the year was 570,400 tons, which was an increase on the 530,550 crushed during 1918. The sorting was, however, slightly less, viz., 20.07 per cent., as compared with 21.191 per cent. in 1918. The recovery averaged 10.422 dwts., being slightly better than the recovery in 1918, which averaged 10.298 dwts. The value of the recovery in 1918 was 43.841s. per ton, whereas, owing chiefly to the gold premium which was obtained after the 24th July, the average value of the recovery for 1919 totalled 49.083s. per ton. The working costs amounted to 21.474s. per ton, an increase of .895s. per ton as compared with the previous year. The gross result was that for the year a profit of £787,407 15s. 6d. was made, as compared with a profit of £617,084 3s. 10d. in 1918. The increase in the working profit, therefore, amounted to £170,323 11s. 8d., of which £132,655 4s. 6d. was accounted for by the gold premium

Dividends Declared.

Two dividends of 22½ per cent. and 25 per cent. respectively were declared during the year, the amount paid out being £568,523 14s. In addition to the cash dividend declared as at the 31st December, a bonus distribution of their holding of 150,000 £1 shares in the New State Areas, Ltd., was made to all shareholders registered on that date. In this connection the sum of £108,000, shown as a "contingent liability" in the previous year's balance-sheet, being balance of 18s. per share on the 120,000 shares 2s. paid was disbursed during the year.

Stores on hand and in transit at the end of 1918 amounted to £81,686, which was reduced to £44,590 by the end of the year under review. Capital expenditure amounted to £14,606, which was spent principally on new electrical equipment for the hoists of the two underground inclines.

The appeal case against the levy made by the Provincial Council was, unfortunately, decided against the mining industry, and the amount assessed on this company for 1918 and 1919, totalling £51,591, appeared in the accounts now submitted.

Completed Sinkings.

The sinking of the two main inclines on their property was completed some time ago, and it would only be necessary to put down small subsidiary incline in the south-east corner of the mine at a later date,

The total development footage amounted to 13,304 feet, an increase of 860 feet as compared with 1918. The results obtained were highty satisfactory, and at the end of the year the ore reserves were increased to 3,200,000 as compared with 2,445,759 tons at the end of 1918. The value and stoping width were slightly higher than at the end of last year.

For the first four months of the current year the results had been better than 1919, as a profit of £300,495 has been made on an estimated value of the gold recovered, which would probably prove to be slightly lower than the actual value obtained from the sale of the gold. The working costs appeared substantially higher at the average of 25.534s. per ton crushed for the four months of 1920. The increase was partly accounted for by increased payments to employes—both workmen and staff—by increased contributions under the Miners' Phthisis Act of 1919, and chiefly by the increase in the rate of exchange. According to the system obtaining in the Barnato group of mines, the expenses of gold realisation and exchange were always charged to working costs. During the early part of this year the exchange on sight drafts amounted to ¾ per cent. At the beginning of March it was raised to 4½ per cent., and subsequently further increases were made, so that to-day it stood at 8½ per cent. Therefore, exchange alone to-day would add 4s. 8d. per ton to the working costs of the mine if the full value of the gold sold were drawn on this side.

The western side of the mine had always been poor and had not been taken into account in valuing the mine. A certain amount of development there had been started, however, as it was necessary that it should be fully explored during the life of the mine. The results so far obtained had been more encouraging than was anticipated, and it was probable that a considerable tonnage of low grade ore would eventually be obtained from that side of the mine.

During the early part of the year the mine was somewhat short of native labour, but the position improved towards the end of the year and to-day the position was satisfactory.

In conclusion, it might be said that the mine was never in a sounder position than it was to-day, and there was every reason to hope that they might look forward to many prosperous years.

The report and accounts were adopted by the meeting.

RANDFONTEIN CENTRAL.

Mr. John Munro presided at the annual general meeting of the Randfontein Central G.M. Company, Ltd., held on June 4 in the Consolidated Buildings.

In the course of his remarks, the Chairman said: The ore crushed amouted to 1,729,400 tons, being very nearly the same as last year when 1,745,900 tons were crushed. The recovery averaged 5.419 dwts. per ton as compared with 5.351 dwts. in 1918. The average value of the recovery during 1918 was 22.817s. per ton, but owing to the premium on gold, which was obtained after the 24th July, the average for 1919 was 25.624s. The working profit for the year amounted to £309,089 7s. 4d., which included the premium on the gold sold, amounting to £218,581 19s. 6d. The working costs for the year averaged 22.05s. per ton crushed. During the first four months of the current year the working costs have jumped up to an average of 28.541s. per ton. This very substantial increase is partly accounted for by increased wages and salaries to employes; partly by increasing trouble in the old shafts and consequent extra expense of upkeep and decreased tonnage milled; and also to extra contributions under the Miners' Phthisis Act of 1919, which, for the first four months of this year have amounted to £18,510. When I addressed you at our last meeting I mentioned that the profit made for the year was not sufficient to meet the outlay required for capital expenditure and the payment of debenture interest and redemption, and consequently it became necessary to borrow £301,872 for this purpose from the Randfontein Estates Company. The capital expenditure during the year amounted to £211,804, and was incurred almost entirely in connection with the sinking and equipping of the two new vertical shafts. Debenture interest amounting to £145,542 1s. 11d. was paid and debentures to the value of £115,700 were purchased during the year from the Randfontein Estate Company (the holder of the entire issue) to meet the redemption instalment due on the 1st March, 1920. These debentures have since been cancelled and the issue now stands at £2,315,600. On account of the profit made being insufficient to meet these disbursements it again became necessary to borrow a further sum of £396 128, and at the 31st December last the indebtedness to the Randfontein Estate Company figures at £698 000.

The north vertical, at a depth of 3,210 feet, intersected the Randfontein Leader and the West Reef at a depth of 3,560 feet, both reefs assaying 9.8 dwts. over 43 inches. Another satisfactory feature, apart from the values disclosed, is that the reefs continue to dip at an angle of 60 degrees. It is expected that the Randfontein Leader will be struck very shortly in the south shaft.

It should be mentioned that the new pumps in the north shaft were started on the 30th April, so that the water difficulties may now be said to be overcome. The scheme of central pumping, which has been put into operation, already saves 72 pumps, and will ultimately save several more.

Development.

The total development footage amounted to 48,920 feet, as compared with 52,210 feet accomplished during the preceding year. The reef exposed in the development in all the sections from Mynpacht southwards, was consistently good, the Randfontein Leader showing 90.78 per cent. payability, and the West Reef 84.41 per cent. payability. Development was commenced in the north vertical shaft at the 2.500 foot level. The new scheme of development involves driving in the footwall under the reefs, and consequently it is not possible to value the ore developed in this manner in the old way.

At the end of 1918 the ore developed was estimated at 4,254.000 stoping tons, of a value of 6.8 dwts. The re-estimation at the end of 1919 brought down the figure to 3,802,000 tons, of an average value of 6.3 dwts. The reduced tonnage was due partly to the fact that certain inaccessible areas were cut out, and partly to the difficulty of valuing and including all the area developed under the new scheme. The reduced value was due to the fact that the pay limit was lowered slightly owing to the gold premium.

The northern section of the mine has always been disappointing. The grade of the ore mined tends to get lower rather than higher, and the little development that has been carried on there recently has revealed no encouraging features, consequently the question of stopping this section is receiving the serious attention of your directors. It should also be mentioned in this connection that your directors are negotiating with the board of the Randfontein Deep Company, with a view to acquiring that company's claim area. It is hoped that the battery reef series on that area would yield a considerable tonnage of moderate grade ore and that as the reefs would be worked from the outcrop, the ore would be won at a comparatively cheap rate.

The motion was carried. The retiring directors, Messrs. J. Munro and J. G. Lawn, were re-elected, and the auditors were reappointed.

RANDFONTEIN ESTATES.

At the annual meeting of the shareholders of the Randfontein Estates Gold Mining Company, Witwatersrand Ltd., held on June 4, Mr. J. Munro, chairman, stated that the general revenue for the year, which included dividends and debenture interest received and accrued, totalled £226,973. Included in this figure was an amount of £5,661, representing discount on debentures purchased. After deducting the expenditure of £116,599, included in which was debenture interest amounting to £89,638, there remained a surplus of £110,374 for the period. During the year their debenture issue was decreased by £72,800, representing the sixth annual instalment of redemption, and now figured in the accounts at £1,507,360. In addition a further £77,100 debentures were purchased for the redemption due on the 1st March, 1920, at a discount of £5,925.

The necessary permission to establish a township at Randfontein had been obtained from the Townships Board and confirmation of the plans which were in the hands of the Surveyor-General was now awaited before proceeding with the sale of stands.

On the last occasion, he said, he pointed out that it had become necessary, on account of the reduced profit earned by their subsidiary company, the Randfontein Central Gold Mining Co., Ltd., to borrow from this company £301,872 in order to meet its liability for capital expenditure, debenture interest and redemption. As the profit earned by the Central Company this year was again insufficient to meet its liabilities in this respect, it became necessary to borrow from this company a further sum of £396,128, making the total indebtedness by the Central Company at the 31st December last £698,000.

The company had borrowed from the Johannesburg Consolidated Investment Co., Ltd., a sum of £285,610. This loan became necessary as the profit earned by this company was insufficient to meet the calls made by the Central Company. This company held 2,980,411 shares in the Randfontein Central out of an issued capital of £4,500,000 shares of one pound each, and it also held the Central Company's entire debenture issue, amounting to £2,315,600. It would therefore be apparent to shareholders that this company was obliged to finance the Randfontein Central in order to enable it to complete the scheme of underground reorganisation put in hand in 1917. The progress made in bringing this work to completion was fully set forth in the consulting engineer's report and the chairman's speech at the Central Company's meeting.

The adoption of the report and accounts was passed unanimously without discussion. The appointment of Messrs. H. A. Rogers and J. G. Lawn as directors was confirmed.

NEW BOKSBURG GOLD MINES.

At the meeting of the New Boksburg Gold Mines, held on June 2, 1920, Colonel Dalrymple said the reasons which had led the directors to recommend the winding up of the company were well known. A considerable amount of shaft sinking and exploration had been done on the property. Immediately around the shaft a small patch of good grade ore was discovered, but proved to be merely a local enrichment. No other discoveries of economic importance were made, and, as a whole, the results disclosed by development were extremely disappointing.

The capital subscribed in 1909 for the exploration and development of the claims having been practically exhausted, mining operations were suspended in July 1911, and the property had since been in charge of a caretaker. It was at one time hoped that work on the neighbouring properties would have shown favourable results, and that some arrangement could have been come to with one or more of those companies for an amalgamation or for the sale outright of the company's interests. It was to be regretted, however, that the results disclosed on the adjoining properties had not been such as to justify any practical scheme being put forward.

As the possibility of resuming mining operations became more and more remote the directors deemed it advisable to dispose of certain of the company's assets, and took advantage of the high prices ruling during the war period to sell the company's plant and equipment. All expenditure, apart from claim licences, had been recovered from the rentals accruing from the company's cottages. The company had participations in what were known as the Kleinfontein Power Association and the Kleinfontein Group, Central Administration. Owing, however, to the unlikelihood of this company resuming mining operations, it was decided to offer these participations to the other partners in these concerns. The price to be paid for the participation in the Kleinfontein Power Association was fixed by arbitration at £20,000, and the company had since received that amount from the New Kleinfontein Company. For the sale of its assets in the Kleinfontein Group, Central Administration, the company had still to receive from the New Kleinfontein Company an amount of £4.217 0s. 9d. being the price agreed upon, the date for payment of this amount being mutually agreed on as August 19, 1920. The financial position of the company at date is: Actual cash in hand, £55.250; sundry debtors, £4.217—£59,467 — to which must be added the amount to be realised on the sale of the remaining assets belonging to the company. The liabilities were nil.

It was agreed that the company be placed in voluntary winding-up.

Lonely Reef Values.

While high values continue to be disclosed at the 19th level south in the Lonely Reef Mine, the deeper horizons have not had quite such happy fortune. Taking the results for the past three months, the 19 S. shows from 732 feet to 747 feet as good as 44 dwts. over a width of 65 inches. Onwards both width and value decrease, though results are nevertheless capital. From 747 feet to 767 feet the average is 32 dwts. over 61 inches, and from 767 feet to 790 feet the width falls to 42 inches, while the value is 36 dwts. Disclosures on No. 20 S. have varied. From 641 feet to 665 feet the value was 17 dwts., and the width 26 inches; in the next 29 feet the value rises to 25 dwts. and the width to 31 inches, only to deteriorate from 694 feet to 730 feet, the value being 10 dwts. and the width 26 inches. Out of the last 111 feet driven on No. 21 S. only 30 feet are satisfactory, with a gold content of 28 dwts. over 1 foot of reef. On the next level in the same direction, from 95 feet to 115 feet, the value is 15 dwts. over 57 inches, while thence to 168 feet the reef is inaccessible. After starting well with 15 dwts. over 12 inches for the first 55 feet, the No. 22 N. was unpayable up to 74 feet, but from that point to 122 feet the value is 10Z dwts. over 33 inches. The next 23 feet were unpayable, while values made again at 145 feet, 32 feet giving 17 dwts. over 32 inches and 47 feet 13 dwts. over 33 inches. The No. 22 S. has had varying fortune. The first 59 feet gave 11 dwts. over 49 inches, then for 19 feet the ground was dangerous, and could not be sampled. From 78 feet to 95 feet 17½ dwts. were shown over 17 inches, and onwards to 115 feet 15 dwts. over 57 inches. In the last 53 feet the reef has been inaccessible. The Lonely Reef is one of the few Rhodesian mines that have given such excellent values in depth.

Transvaal Alluvial Diggings : April Returns.

An official return shows that 11,671 carats of alluvial diamonds, valued at £160,910, were produced in the Transvaal during the month of April. The number of registered claimholders was 5,017, and the number of diggers who registered finds was 1,718. The names of the farms on which the diamonds were found are as follows :—

	Farm and District.	Value of Diamonds.
181	Assegai, Wolmaransstad	220
171	Bloemheuvel, Bloemhof	370
14	Boschplaats, Wolmaransstad	28
23	Biesjeslaagte, Bloemhof	25
130	Bloemhof, Bloemhof	3,919
63	Blesbokfontein, Bloemhof	11,389
	Christiana	528
131	Diamontsdoorn, Bloemhof	93
93	Doornbult, Wolmaransstad	162
245	Dievedraai, Bloemhof	242
593	Eastleigh, Klerksdorp	770
290	Eerstebegin, Bloemhof	225
125	Grootpoort, Bloemhof	119
133	Grootdoorns, Bloemhof	431
142	Hollowaysrust, Wolmaransstad	1,559
328	Italie, Bloemhof	985
	Jalagala, Schweizer Reneke	60
65	Kaffirspan, Bloemhof	395
54	Koppiesvlei, Bloemhof	298*
104	Klipkuil, Wolmaransstad	729
108	Kromellenboog, Bloemhof	53
163	Katsdoornkraal, Wolmaransstad	25
131	Katboschfontein, Wolmaransstad	259
142	Kameelkuil, Bloemhof	30,516
137	Kareepan, Wolmaransstad	10,658
143	Leeuwfontein, Wolmaransstad	2,799
33	London, Bloemhof	4,149
	Langkuil, Bloemhof	100
120	Maroetjfontein, Bloemhof	40
128	Mooifontein, Bloemhof	632
75	Mimosa, Bloemhof	140
376	Olievenfontein, Bloemhof	136
	Oostrustkraal	14
121	Plessisdam, Bloemhof	2,447
91	Palmietfontein, Wolmaransstad	10
120	Rietput, Bloemhof	48
108	Roodepoort, Wolmaransstad	3
138	Rietkuil, Wolmaransstad	26,126
	Schweizer Reneke	3,316
	Schaapboschdraai	16
150	Sytergat, Wolmaransstad	6,188
25	Sandringham, Bloemhof	527
329	Vecchtvallei, Bloemhof	188
61	Vuurfontein, Bloemhof	60
165	Zevenfontein, Bloemhof	1,708
68	Zwartlaagte, Bloemhof	30,513
		111,115
520	Bynestpoort, Pretoria	17,658
106	Kameelfontein, Pretoria	1,604
314	Roodeplaats, Pretoria	182½
402	Kaalfontein, Pretoria	51
		19,495½

The Rapid Earth Thrust-Borer.

During the long period of trench warfare many devices were proposed for enabling bores to be made through the earth towards the enemy trenches so as to reach their mines. One invention by two British officers underwent successful trials, but it was never put to full use because it proved rather complex and cumbrous. This attempt, however, inspired one of the officers to design a much simpler appliance for rapidly and accurately boring a hole through clay and other heavy soil for drainage purposes and laying electric cables or pipes. It is a portable hydraulic appliance, power being supplied by a small petrol engine, and it operates by the simple process of pushing a steel rod fitted with a header of the diameter required straight into the soil in the direction required. The rod is about four feet long, and when it is pushed home another rod is coupled to it and the forcing process repeated. This goes on until anything from 100 to 150 feet of rod have been forced through. As the diameter of the rods is much less than that of the hole, withdrawal is easy. Holes up to 15 inches in diameter can be made on this system, and experience has shown that with two men working ahead on the pits necessary to accommodate the machine a boring team of three men can complete two 150-feet borings in an eight-hour working day. Clay, consolidated loam, and sandy soil with a good percentage of clay can be satisfactorily bored by the machine. There is remarkably little deviation from the straight line in which the appliance is originally set.

IMPORTANT TO SECRETARIES OF COMPANIES.

THE ARGUS PRINTING AND PUBLISHING COMPANY,
- - - LIMITED, make a Speciality in the - - -

PRINTING OF COMPANIES' ANNUAL REPORTS,

and can execute these

IN TWENTY-FOUR HOURS AFTER RECEIPT OF COPY.

THE NEW MACHINERY LATELY INSTALLED IN THEIR WORKS is the means of their expediting this particular class of work.

ESTIMATES GIVEN ON APPLICATION TO

The Argus Printing & Publishing Co., Ltd.,

Box 1014. Lower President Street, Johannesburg.

'PHONE UP 3232.

Representatives especially set apart to wait upon Clients on receipt of a Telephone Message.

PROFESSIONAL DIRECTORY.

LITTLEJOHN & WHITBY,

ASSAYERS TO THE AFRICAN BANKING CORPORATION.

CONSULTING ANALYTICAL CHEMISTS AND METALLURGISTS.

P.O. Box 849. **'Phone 1633.**

Office and Laboratories:
24, SIMMONDS STREET, JOHANNESBURG.

Assays and analyses of all Minerals, Drugs, Foods, Water, Milk, Oils, etc., undertaken.

Experiments conducted. Reports made as to the treatment of any class of Ore.

PATENTS AND TRADE MARKS.

D. M. KISCH & CO.

(C. H. M. KISCH—A. L. SPOOR).

ESTABLISHED 1874.

Members Chartered Inst. of Patent Agents, London.

COLONIAL AND FOREIGN PATENT AGENTS.

The Firm undertake the Patenting of Inventions and the Registration of Trade Marks throughout the world; the Preparation, Revision or Amendment of Specifications and Drawings; reporting on Validity and Infringements; obtaining copies of Specifications and Drawings of Patents granted; Searches through the Patent Offices Records; the conduct of Oppositions, and all other matters relating to Patents and Trade Marks.

No. 16 to 19a, NATIONAL MUTUAL BUILDING,
Corner of Rissik and Market Streets.

P.O. Box 668. **Telephone No 774.**

Box 2127 **Est. 1892.** **Phone 217**

GEO. McINNES,

B.Sc., M.A.M.E.

Electrical Supplies.

Marshall Square,
Johannesburg.

J. E. MILLS DAVIES,

CONSULTING MINING ENGINEER,

180, Stock Exchange Buildings,

P.O. Box 4573. Johannesburg. **Telephone 913.**

MINING AND INDUSTRY IN SOUTH AFRICA.

JOHN A. COETZEE, J.P.

MINING AND INDUSTRIAL AGENT,

Can secure and furnish you with Full Information of

HIGH GRADE MINING PROPOSITIONS
IN
GOLD, DIAMONDS, COAL and BASE METALS.

Write, wire or cable to
The Man Who Knows the Country, Its People
and "HIS BUSINESS."

Offices:—
2, 3, 4, AND 7, STOCK EXCHANGE BUILDINGS,
JOHANNESBURG, SOUTH AFRICA.
Tel Add.: "MONEYGOOD."
Codes: A. B. C. 5th Edition and Broomhall's Imperial Combination.
P.O. Box 6051. **'Phone 1326 (Central)**

E. M. WESTON,

Assoc. S.M.B., etc.,

Certificated Mgr. Tasmania and Transvaal.

P.T. Consulting Engineer (Metals) to Transvaal and Delagoa Bay Investment Co., Ltd. Consulting Engineer, N'Kana Copper Mines, Reliance Gold Mine, Tambootje Tins, Ltd., etc.

Mr. Weston has managed mines of gold, tin, copper, silver-lead, wolfram and bismuth, and was Examining Engineer, Rhodesia, for the J.C.I. Co., Ltd.

Mr. Weston is prepared to report on mineral properties and to prepare plans, etc., for their equipment.

148, Exploration Buildings, and Box 3308,
Phone 1796. **JOHANNESBURG.**

DUNSWART IRON & STEEL WORKS, LIMITED.

MANUFACTURERS OF
FLAT, ROUND & SQUARE BARS (IRON AND MILD STEEL),
ANGLES, etc.

Johannesburg Offices:
Southern Life Buildings,
Main Street.

P.O. Box 3921.
Telephone 1924.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] JUNE 19, 1920. [No. 1499.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 367

Topics of the Week:

The Currency Problem 369

Valuable Reports on Far East Rand Mines 371

Mr. G. A. Denny's Report on Maraisdrift 373

Associated Scientific and Technical Societies: Inaugural Meeting 375

The Other Side of the Currency Question 377

The Komati Gold Fields: A Retrospect—II. 381

A Plea for the Abolition of the Day of Rest 383

Correspondence and Discussion: "The 'New Geology' on the West Rand"; "The Position of the Roodepoort United" 385

Personal 384

The Week in the Sharemarket 387

The Rhodesian Geological Survey 388

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 389

Company Meetings: Crown Mines; T. C. L. and Exploration Co.; Roberts Victor Diamonds 392

Notes and News.

Postmas Prospect.

The preliminary equipment for a test washing on an extensive scale of the Postmas Prospect property will be erected in from two to four months' time. Exploratory work is continuing under the management of Mr. West, and the latest shafts and cuttings confirm the estimate of the company as to the size and value of the diamondiferous occurrences.

* * * *

Earth Tremors.

Mr. Percy Cazalet read a paper on earth tremors at this week's meeting of the South African Institution of Engineers. He was assisted by Mr. Wood, of the Royal Observatory, who explained the working of the seismograph. Mr. Cazalet's view was that our earth tremors were due to the breaking of the overlying strata due to overstrain, and that bursting pillars were only the phenomena of over-stress, following immediately on the readjustment of weight after these ruptures; so that hydrostatic tension at times of ample rainfall must aid in preventing rupture and conversely the absence of water and presence of air in the interstices of the overlying strata must aggravate any induced instability and hence encourage rupture and therefore tremors.

* * * *

South-West African Minerals.

A gentleman who has just returned from the South-West African Protectorate after a lengthy residence in an important capacity there, has given us some interesting views in regard to the future of the Union's new annexe. He says that although only three mineral products are proved to exist in payable quantities to-day, that is, diamonds, tin and copper, the greater part of the country is heavily mineralised and highly important discoveries are likely to be made in the near future. The Germans merely scratched the country and paid much more attention to laboratory analyses than they did to actual work in the field. The country is not a difficult one to prospect although transport conditions and absence of water in several localities constitute a very considerable handicap. Our informant ventured the opinion that the Kakaoveld portion of the territory was likely to yield some highly important discoveries in the near future, particularly in regard to gold. The principal tin discovery so far made in the Protectorate is at Kohera, where ore assaying as much as 74 per cent. of tin is being mined, but there are numerous other occurrences which are now being developed.

* * * *

The Electrification of the S.A.R.

In his valedictory address to the South African Institution of Engineers on Wednesday, Mr. W. Elsdon-Dew, the retiring president, made a reference to the electrification of railways. He said that he considered the decision of the Union Government to make a modest start on the electrification of part of the railway system the forerunner of most important developments for South Africa. This country had the advantage of learning what to avoid, and as Great Britain had now recognised the importance of super-power stations and the conservation of her coal resources, so it pointed to what South Africa would do in having power available along all railway lines and thus standard systems of supply would prevail. This important side of supply of cheap power was not to be lost sight of, as all towns and industries should, with advantage, utilise such power when it became available. It was recognised that in this great scheme of electrification of the railways advantage would be taken to utilise coal in its most economical form, and as England had been warned of the wasteful use of a national asset, so must South Africa take a lesson and conserve the national assets she had in her coal and also from coal obtain such by-products as would provide materials for many industries. Wherever industries and municipalities were likely to want power they should adopt the standards which were accepted as being most suitable, and look out for the future when they could get power supply from the railway system or other super-power plants.

Great Namaqualand Exploration Company.

An interesting case has recently come before Mr. Justice Ward in Kimberley, in which the affairs of the Great Namaqualand Exploration Company, Ltd., were discussed at some length. The company, of which the late Mr. C. J. Rhodes was chairman, acquired valuable rights of almost every kind from various chiefs in Great Namaqualand just before the occupation of that territory by Germany. After the occupation notice was given that all claimants to concessions or other rights should appear before a Court of Investigation at Windhuk, in order to declare and substantiate their claims. Two agents appeared on behalf of the Great Namaqualand Exploration Company, Ltd., in due course, but one was arrested on a charge of supplying arms to the natives and the other had to flee the country. Although the titles of the company were clear and legal as far as the law went in that territory at the date of the granting of the concessions, the German administration refused to recognise them. It is supposed that the company has some chance of substantiating its claims in consequence of the change in the Government, and shareholders are advised to send their addresses and register their shares if necessary with the secretaries of the company, the Griqualand West Board of Executors, in Kimberley.

* * * *

South African Institution of Engineers.

The retiring president of the South African Institution of Engineers, Mr. W. Elsdon-Dew, at the annual meeting on Wednesday evening in the Chamber of Mines Council Chamber, gave his valedictory address. During the past year, he remarked, the institution had passed through a most important era in its history, for the industry with which it was closely connected had experienced some of the most difficult problems with which it had ever been faced. The Institution had an important duty to assist in solving those problems. Only in a very small way did the annual report reveal the work of the Council and sub-committees in exerting their energies to broaden the influence of the scientific and technical professions in the development of South Africa generally. Engineers were to-day depended on more than any other branch of work to accomplish results. In regard to the work of the Council, the speaker referred especially to Mr. J. W. Kirkland, chairman of the Editorial and Papers Committee; the secretary, Mr. W. W. R. Jago; and Mr. E. J. Laschinger, whose retirement from office all would hope was only temporary. Referring to the consummation of the scheme and closer working of the technical societies, he especially referred to the great work and consistent efforts of Mr. Percy Cazalet. Mr. Elsdon-Dew made a further special allusion to the irreparable loss they had suffered in the untimely death of their immediate past president, Mr. C. D. Leslie.

* * * *

The Need for Greater Efficiency.

Speaking this week at the annual meeting of the South African Institution of Engineers, Mr. W. Elsdon-Dew, the retiring president, referred to the acute position of the mining industry. The drop in the gold premium, he said, had already caused the closing of certain mines, resulting in Government inquiries. Well, if good could come out of evil, perhaps what was happening would bear good fruit, for they were having some most illuminating evidence wherein the workers acknowledged that inefficiency undoubtedly existed. But they did not blame themselves: they blamed the management. During the War, and since, every effort had been made to conciliate labour and ameliorate hardships, and he feared that the employer had failed to recognise that the non-efficiency in labour would ultimately lead to disaster. This state of inefficiency was now accepted by labour, and therefore the path was open for a thorough examination of the subject. Labour witnesses agreed that increased output by all was possible, and apparently it had already had an important effect, for certain mines had accepted the decisions of the management for retrenchment and increased output per man. There was a great hope for that movement, and out of it some mines could be saved, but he hoped the lesson to be learnt would not stop there. High costs of every necessity had prevailed, and, although from time to time it had been preached by speakers that increased production was the cure, yet only now did the workers appear to recognise it. As this wave of knowledge proceeded, so increased production would bring down costs and make many things possible. Nearly every day one read that this knowledge was bearing fruit, for the short-sighted policy of restricted output was now reacting so that every one was feeling the results, viz., increased cost of living. As had been pointed out by many, the inevitable result must react upon the worker, and, if one might quote it, he felt it should be brought home to all that to "do your duty in that state of life in which it has pleased God to place you" would help more than anything else to improve conditions.

* * * *

The Half-Year's Dividend Distributions.

The first of the half-year's dividends have now been announced and call for some comment. As was generally anticipated, distributions are generally somewhat less than were declared six months ago, but are better than the announcements of this time last year. The New Modderfontein furnishes the exception with a dividend of 4s. 6d. per 10s. share, that is to say, 45 per cent., as compared with 37½ per cent. in December last and 32½ per cent. in June. On the other hand, the Modder B. now pays out only 6s. 6d. as compared with 9s. 6d. last year-end and 9s. twelve months ago. The City Deep's dividend (No. 16) of 12½ per cent., or 2s. 6d., is 1¼ per cent. below the distribution of six months ago, but the annual rate, which was 23¾ per cent. last year, is more than maintained. The Crown Mines distributes 27½ per cent., or 2s. 9d. per ten shillings share, as against 5 per cent. a year ago and 35 per cent. last December. Consolidated Main Reef pays 6¼ per cent., which compares with 2½ per cent. last June and 6¼ per cent. at the year-end. The Geldenhuis Deep's dividend at 2½ per cent. is at the same rate as was announced last June, but is only one-third of the December declaration. The Rose Deep's distribution of 10 per cent. is 7½ per cent. below December's distribution, but is 6d. per share better than was announced this time last year. The Village Deep pays 6d. as against 6¼ per cent. for the year 1919 and 3¾ per cent. for 1918. The Rand Mines distribution, dividend No. 34, is of 60 per cent., or 3s. per 5s. share. Springs Mines re-enters the dividend list with a declaration of 5 per cent. only. The Leeuwpoort Tin Mines, Ltd., declares dividend No. 5 of 5 per cent., or 1s. per share, and Swaziland Tin, Ltd., makes a distribution of 10 per cent. As to collieries, the Cassel Coal Company has announced a dividend No. 39 of 5 per cent. Our usual half-yearly dividend table will appear next week.

* * * *

The Diamond Market.

The position of the diamond market in mail week, according to the *Financial News* correspondent, was as follows: "Conditions in the diamond trade have improved to a small extent during the past week. So far as rough goods are concerned the number of applicants for a series is still greatly in excess of the supply, which means that the producing companies continue to do well. The trade in brilliants, which has slowed down of late, is showing greater activity, due to the less agitated condition of the exchanges and to the cessation of the wild speculation which was so rampant a few months ago. The speculators, who were outside the legitimate business, were asking exorbitant prices—a fact that reacted unfavourably upon merchants and cutters, and greatly interfered with the ordinary trade. As the latter refused to countenance the unhealthy competition, the position is now becoming normal. Of course, there is always a regular business in cut goods, and this has not been affected to any material extent while prices remain at the fixed levels. Some large lines are now in course of negotiation on the Continent, while inquiries on American account, which had become rather quiet, are again coming forward."

* * * *

Emerald Diamonds.

The Marquis of Queensberry, a director of Emerald Diamonds, Ltd., who is at present resident at Postmasburg, has just returned from a lengthy inspection of the company's properties and has wired that he is most impressed with the diamondiferous areas secured by Emerald Diamonds, Ltd., and is confident as to results. Work has just been started on three new areas and the general outlook is highly satisfactory.

TOPICS OF THE WEEK.

THE CURRENCY PROBLEM.

The very able and thought-compelling contribution to the discussion on the currency problem made by Mr. Samuel Evans at the Crown Mines meeting is printed in full in another part of this issue. No one is better qualified than Mr. Evans to speak on this subject, and we trust we shall not be accused of inconsistency if we commend his views to the serious attention of our readers. Mr. Evans, like Mr. D. C. Greig, has lately been giving the Select Parliamentary Committee at Capetown the benefit of his opinion, and he seems to regard it as certain that as a result of the inquiries of that Committee, the now famous Strakosch proposals will be adopted by the Government more or less in their entirety. Those proposals, it will be remembered, were very fully described in our pages, and they seem to have won the approval of General Smuts and of the majority of the members of the Select Committee. They also secured the official blessing of the ex-President of the Chamber of Mines, and certainly did seem to offer a very attractive solution of the currency problem as it affects South Africa. Mr. Evans, however, refuses to be persuaded that they differ inherently from the various other expedients put forward, which all suffer from the common defect of making for paper currency inflation. The last-named, all are agreed, means increased prices, higher cost of living, and the final ruin of the low-grade mines. Upon Mr. Evans has devolved the thankless task of throwing cold water on the fire of inflated paper currency when, as he puts it, others would damp it down with petrol. And it must be admitted that he brings to his task a vast fund of knowledge and experience coupled with a deep and prolonged study of the history of currency which it would be dangerous to ignore. We have no means of knowing exactly how the Select Committee regarded the plain speaking and perhaps unpalatable home truths advanced by Mr. Evans. We know they were predisposed to welcome Mr. Greig's easy economics, and Mr. Strakosch's frankly opportunist expedients. But we may be permitted to hope that Mr. Evans exerted a moderating influence on the enthusiasm of the Select Committee for following the line of least resistance; and when the report of that body—which is expected any day now—is issued we shall be disappointed if his shrewd and far-seeing advice is not given due weight and deference. The serious nature of the warning issued by Mr. Evans is shown by his concluding statement that South Africa had reached a critical stage in the currency discussion; that it was on the verge of a precipice; and that there was, he feared, a real danger that in order to give purely temporary relief to the banks, the wool and other industries, the Government and the Parliament of the Union might adopt a course which must terminate disastrously, however promising it might appear now. Practically every country in the world, he said, had at one time or another experimented with inconvertible paper money, often with bright and hopeful beginnings, but always with ruinous endings. There was only one remedy in his opinion for the present state of affairs here and elsewhere, and that was deflation, a reduction of the quantity of paper money in circulation to enable this country to return at the earliest possible moment to a free market in gold. Afflictions caused by excessive issues of paper money could only be made worse by further issues. Mr. Evans excused himself for dealing again at some length with this question by stating his firm conviction that it overshadowed every other question as far as we are concerned; that the disordered condition of the currency was the root cause of most of our troubles, and that consequently the majority of the other matters with which we occupied our time were of trivial significance compared with that. To his mind, the most important and the most urgent problem confronting this community and the world at the present moment was that of the relation of currency to gold. In fairness to Mr. Evans, it must be added that he is not the mere destructive critic of other people's theories that these extracts from his views might lead one to suppose. Nor is he content merely to offer the counsel of perfection that we must return at the earliest possible moment to a free market in gold. In his evidence before the Select Committee will be found, we believe, proposals to help forward the currency of the country in the desired direction, and it is unfortunate for him that the very nature of those proposals makes their publication inexpedient. The pity of it is that no *via media* can be suggested whereby the views and expedients put forward by the protagonists in the controversy can be reconciled, and all the earnest thought and trouble given to the solution of this outstanding problem brought to successful fruition in the interests of the country.

Sabie and Pilgrims Rest Claimholders.

Owing to pressure on our space, the address recently delivered before the Pilgrims Rest and Sabie Claimholders' Association by Mr. Haskel has been unavoidably held over till our next issue.

* * * *

The Failure of American Locomotives.

In regard to the article concerning American locomotives which appeared in the June 5, 1920, number of this journal, Mr. R. A. Lundquist, the American Trade Commissioner, draws our attention to the following points: It appears that the locomotives in question were ordered over a period between June, 1918, and October, 1919, and most of these have had many months' service already, whereas many locomotives from other makers ordered almost five years ago are just now being delivered. We are asked to take into consideration the facts that these locomotives were delivered when the motive power situation on the railways here was acute, that they were built in Canadian works where skilled labour was difficult to secure on account of the War, and that they were sold at about two-thirds the amount quoted by European makers. In addition, Mr. Lundquist points out that his observations in travelling around the country lead him to believe that the shortage of motive power has been so great that these locomotives have not been maintained as they should. Regarding the statement that the American type of locomotive could not pull the same load as that handled by other makes, Mr. Lundquist reminds us that if two locomotives have the same boiler pressure, the same cylinder dimensions, and the same wheel diameters, and are both in good operating condition, they should each be able to handle the same load in the same time, under similar road conditions

* * * *

The Registration of Mining Engineers.

In the course of his speech at the forty-third annual dinner of the Royal School of Mines (Old Students') Association, Mr. Ernest E. Woakes, commenting upon the non-recognition in English-speaking countries of the mining engineer as a professional man, observed that this was very unfair to the profession. The Institution of Civil Engineers had lately proposed to promote a Bill in Parliament for the registration of civil engineers. The Institution of Mining and Metallurgy, guided by its past President, took a leading part in protesting against that Bill, with the result that it was withdrawn. If another Bill with a similar object was brought forward, it would be on quite different lines—maybe such that mining engineers could support it. The different branches of modern engineering interlocked to such a degree that it was extremely difficult to define any particular class of engineer. Mining engineers, for example, " in their spare moments," built railroads and carried out water schemes. But, even though in favour of registration, they had no intention of being forced to become civil engineers. If the registration of mining engineers would assist them in obtaining recognition as a body, they ought to support it.

SIEMENS BROTHERS
& CO., LIMITED

CABLES and WIRES	TELEGRAPHS	LINE MATERIALS
CABLE ACCESSORIES	TELEPHONES	FLUID CELLS
EBONITE	SIGNALLING APPARATUS	DRY CELLS

SIEMENS BROTHERS & Co., Ltd.,

WOOLWICH, LONDON, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 Lines). Telegrams: "SIEMENS, WOOLWICH."

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

VALUABLE REPORTS ON FAR EAST RAND MINES.

Inspector of Mining Leases on a Quarter's Development and Production—A Close Analysis of the Position—How Springs, Brakpan, Government Areas and Modder East are Progressing—the Question of Payability at West Springs.

THE reports of Mr. J. M. Twiddy, Inspector of Mining Leases, on the operations of the Far East Rand gold mining companies in which the Government is a partner, during the quarter ended with March last, which have just been issued in the *Government Gazette*, make most interesting reading. The companies concerned issued their quarterly reports some time ago and it may therefore be alleged that Mr. Twiddy's resumé makes a somewhat belated appearance. But on the other hand the reports issued by the Government from the office of the Inspector of Mining Leases contain a good deal of information and several valuable comparisons which do not appear in the usual monthly reports as issued on the authority of the companies concerned. Mr. Twiddy's reports are written with great clarity in numbered short paragraph form, and we commend the general style and lucidity of these documents to the notice of boards of directors since they give shareholders all the vital information required in a concise and easily understood form—a form which is not always to be found in the quarterly statements issued by companies.

BRAKPAN DEVELOPMENT IMPROVING.

Mr. Twiddy deals first of all with Brakpan Mines. In regard to the ore reserves of this company as at December 31st and June 30th, 1919, the Inspector's figures show an increase of 105,352 tons in the payable reserves and of 369,751 tons in the unpayable reserves during the six months period, there being little difference in the corresponding average widths and values. The average working costs for the year 1919 were 26s. 7d. per ton milled. To meet these costs it is found that after making the necessary allowances for sorting, residues, etc., and taking gold at its normal value a reserve block value of 5·80 dwts. is required as the lowest pay limit. On this basis the payable ore reserves would become reduced by 19·4 per cent. to 2,001,068 tons. As the price of gold increases beyond the normal this unpayable 19·4 per cent. diminishes until the local price reaches £5 11s. 6d. per ounce when the whole of it becomes payable. A summary of the quarter's development work is as follows: Drives, 1,915 ft.; winzes and raises, 1,061 ft.; haulage-ways, including main incline, 1,058 ft.; crosscuts, etc., 168 ft.; total, 4,202 ft.; footage on reef, 2,892 ft.; footage sampled, 2,870 ft.; footage payable, 1,410 ft., equal to 49 per cent.; average reef channel width payable footage, 40 in.; average reef channel value payable footage, 15·2 dwts. Compared with the previous quarter there has been a slight decrease in the footage developed of 6 feet and an increase in the footage sampled of 205 feet. The payable percentage of the footage sampled has increased from 45 per cent. to 49 per cent., but the average value has dropped from 731 inch-pennyweights to 602 inch-pennyweights. The main incline south in the lease area is, owing to faults, still being driven off the reef; it is expected, however, that the reef will be picked up again in from three to four months' time. The development in the south-western portion of the mine during the quarter was nearly all off reef and no payable values were disclosed.

SPRINGS MINES: DECLINE IN "PAYABILITY" BUT INCREASE IN INCH-PENNYWEIGHTS.

The site of No. 4 shaft has been fixed at a point 7,200 feet to the south of the No. 3 shaft. The concrete collar set is complete and the temporary headgear is in course of erection. A sinking winch is in position and the erection of a boiler is in hand. A summary of the development work for the three months is as follows: Drives, 1,357 ft.; winzes and raises, 113 ft.; haulage-ways, 2,093 ft.; crosscuts, etc., 699ft.; total, 4,562 ft.; footage on reef, 2,915 ft.; footage sampled, 2,850 ft.; footage payable, 1,435 ft., equal to 50·35 per cent.; average reef channel width of payable footage, 29·22 in.; average reef channel value of payable footage, 19·37 dwts. Compared with the previous quarter there has been an increase in the footage developed of 139 feet and in that sampled of 240 feet, but the payable percentage of the footage sampled has fallen from 56 per cent. to 50·35 per cent., the average value, however, has improved from 471 inch-dwts. to 566 inch-dwts. The rock broken in the mine according to survey measurements amounted to 146,572 tons. In addition there were 11,572 tons dumped as waste. The rock broken came from the following sources: Payable ore reserves, 111,715 tons, percentage 76·2, sampled value 8·41 dwts.; other than payable ore reserves, 6,896 tons, percentage, 4·7, sampled value 5·14 dwts.; development, 27,961 tons, percentage 19·1, sampled value 3·13 dwts.; total, 146,572 tons, percentage 100·0, sampled value 7·27 dwts. Average stope width, 66 in.; average reef channel width, 26 in.; average stope width in payable reserves, 65 in. Compared with the previous quarter there was an increase in the tonnage mined of 7,610 tons and a decrease in value of ·19 dwt. The average value and width of the ore mined from the payable reserves, according to data adopted in the estimation of reserves, as at the 31st December, 1919, were 8·61 dwts. over 64·89 inches, while the payable reserves as a whole at that date averaged 8·74 dwts. over 62·92 inches. The value of the ore mined from the payable ore reserves after adjustment for the width stoped was of the same value as the corresponding block estimate.

MODDER EAST: PERCENTAGE OF PAYABILITY DECLINES.

A summary of the development work is as follows: Drives, 2,524 ft.; winzes and raises, 2,203 ft.; haulages, 1,420 ft.; crosscuts, etc., 986 ft.; total, 7,133 ft.; footage on reef, 5,443 ft.; footage sampled, 5,315 ft.; footage payable, 2,100 ft. The development at each of the shafts was: Total driven, 7,133 ft.; sampled, 5,315 ft.; payable, 2,500 ft.; percentage payable, 47·0; reef width payable, 27 in.; reef value payable, 14·1 dwts. Compared with the previous quarter there has been an increase in the total footage of

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:
46 Survey Certificates to date, including three Honours Certificates.
Other coaches have obtained one Survey Pass to date.
Last three Managers' Examinations we lead with passes.
We established a percentage record of passes, January, 1920, Managers' Examination.
We lead with Overseers Passes, 1918 and 1919, combined.
WRITE FOR PARTICULARS AND CLASS TIME TABLE.

FURNACES
For all purposes.
50% Saving in Fuel.
COAL, COKE, OIL, GAS, WOOD, etc.
THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

NATIONAL TRADING CO., 54-58, CULLINAN BUILDINGS, JOHANNESBURG.
'Phones 1205 and 1250. Telegrams: "GLORIA." P.O. Box 2762.
SOLE SOUTH AFRICAN AGENTS

QUAKER CITY RUBBER CO., PHILADELPHIA.
RUBBER CONVEYOR BELTS.
DANIEL'S SPECIAL P.P.P. PACKING.
AIR AND WATER HOSES.
SHEET PACKINGS.
"IRONSIDES" DRIVING BELTS.
"QUAKER" TYRES AND TUBES.
QUALITY MECHANICAL RUBBER GOODS of every description.

SIRIUS AUTOGENOUS WORKS CO., LONDON.
OXY-ACETYLENE
WELDING AND CUTTING PLANTS.
ACCESSORIES.
FLUXES.
GAUNTLETS AND APRONS.
&c., &c.
"SIRIUS" LOW-PRESSURE GENERATORS for
EFFICIENCY. ECONOMY. SAFETY.

849 feet and in the footage sampled of 838 feet, whilst the percentage of payability decreased from 60·6 per cent. to 47 per cent., the average value increasing from 367 to 382 inch-dwts.

MODDER GOVERNMENT AREAS: DEVELOPMENT AND COSTS ANALYSED.

The average working costs for the year 1919 were 21s. per ton. To meet these costs it is found that after making the necessary allowances for sorting, residues, etc., and taking gold at its normal value, a reserve block value of practically 5 dwts. is required as the lowest pay limit. On this basis the payable ore reserves would become reduced by 15·3 per cent. to 9,314,000 tons. As the price of gold increases beyond the normal this unpayable 15·3 per cent. diminishes until the local price reaches £5 8s. 3d. per ounce when the whole of it becomes payable. The following table gives the price fine gold must realize per ounce in order to make ore of a reserve value of from 4 to 5 dwts. per ton payable to work on a basis of 21s. per ton working costs:

Ore reserve value in dwts.	4·00	4·25	4·50	4·75	5·00
Gold realisation value per oz.	£5/8/3	£5/1/0	£4/15/0	£4/9/6	£4/4/8

The tendency of working costs is still an increasing one, therefore the above-mentioned pay limit of 5 dwts. based on the normal value of gold will, with little doubt, have to be raised still further to meet the probable average working costs for the current year. A summary of the development work for the quarter is as follow: Drives, 1,354 ft.; winzes and raises, 3,611 ft.; haulage ways, 731 ft.; crosscuts, etc., 1,699 ft.; total, 7,395 ft.; footage on reef, 4,602 ft.; footage sampled, 4,600 ft.; footage payable, 2,680 ft., equal to 58 per cent.; average reef channel width payable footage, 51 in.; average reef channel value payable footage, 16·3 dwts. Compared with the previous quarter, there has been a decrease in total footage developed of 2,098 feet and in the total footage sampled of 1,690 feet, this decrease being due to a breakdown of a motor driving one of the compressors. The distribution of the development over the four shafts does not vary greatly from that of the previous quarter, there being a small decrease in the percentages carried out at the north-east and south-east shafts and a corresponding increase at the north-west shaft. The percentage at the south-west shaft remains the same. The average value of the development has dropped one pennyweight compared with the previous quarter, there being no change in the average channel width; and the percentage payable of the reef sampled has decreased from 62 per cent. to 58 per cent.

WEST SPRINGS: POOR DEVELOPMENT FIGURES.

Throughout the quarter the shaft has been sunk in quartzite, and during March reefs belonging to the Kimberley series were intersected, but were unpayable, the depths values and widths being as follows: At 1,442 feet, trace over 50 inches; at 1,466 feet, 0·6 dwt. over 48 inches; at 1,493 feet, 1·2 dwts. over 21 inches; at 1,565 feet, trace over 9 inches. No 2 shaft has also been sunk in quartzite throughout the quarter, but owing to slips and faults progress has been delayed. Two reefs were intersected in March, one at 987 feet assaying traces over 9 inches, and the other at 1,007 feet assaying 0·1 dwt. over 16 inches. The following is a summary of the development work carried out from the Springs Mines property: Haulage ways, 241 ft.; footage on reef, 241 ft.; footage sampled, 235 ft.; footage payable, 10 ft., equal to 4·3 per cent.; average reef channel width payable footage, 21 in.; average reef channel value payable footage, 14·16 dwts. Compared with the previous quarter there has been an increase in the footage developed of 63 feet. The payable percentage of the footage developed during the quarter is very low, a poor zone having been entered.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Phones 2596-7.

Telegrams: "DELTA."

MR. G. A. DENNY'S REPORT ON MARAISDRIFT.

Extracts from Booklet on the Geology of the Farm.

The following are extracts from the booklet issued by Mr G. A. Denny, M.I.M.M., A.M.I.C.E., etc., regarding the geological formations on the farm Marais Drift, situated between the Nigel Mine and the town of Heidelberg, 2,150 morgen in extent

GEOLOGICAL.

In the opinion of the Government geological survey, and all competent geologists and engineers who have recorded their views, the formation which occupies the territory of the Nigel Company and neighbouring properties is correlative with the Main Reef series and the beds associated therewith of the Central Rand. Abundant evidence is forthcoming in support of this conclusion, and is readily demonstrated to intelligent observers. A typical geological section of the Rand system is characterised by the following successive members, in descending order:—

(a) The Elsburg Reef Group.—The numerous bands of reef included in this group are visible at Boksburg, again on the farm Leeuwpoort, to the south-east of Boksburg, and in the Nigel district—on the farms Grootfontein, Klippoortje, and other farms south-west thereof. Owing to the flatness of the formation in the East Rand syncline in general, and the consequent distance which separates the Main Reef and the Elsburg outcrops, the latter series of reefs has not been passed through in any of the shafts or boreholes which have been sunk. Perfectly open sections of the whole formation, from the Elsburg series to the Main Reef group of reefs are exposed at Boksburg, and again in the Nigel district, giving every facility for correlation.

(b) The Kimberley Reef Group.—This group, taken together with the strata above and below it, is perhaps the most important correlating link in the whole system classed as the upper Witwatersrand formation. Not only does it comprise a system of reef bands which occur at irregular intervals through several hundreds of feet of quartzite, but there is for all practical purposes a complete absence of the shale beds and amygdaloidal diabasic sheets, which occur in the section of the upper Witwatersrand beds, near to the Main Reef group. Consequently, if a Rand borehole section be examined, which shows the conditions just described, it may be classed with the greatest confidence as the Kimberley Reef. There is no other section of strata with which it is comparable, nor with which it may be confounded.

(c) The Kimberley Shales.—These shales occupy such a constant position between the Kimberley Reef and the Main Reef Leader, that they are only second in importance to the Kimberley Reef as a factor in correlation. It is the one thick shale bed lying above the Main Reef Leader. Its horizon at the base of the Kimberley Reef group is an aboslutely safe guide to the geologist. Any comprehensive borehole section purporting to be Main Reef, or Van Ryn Reef, or Nigel Reef—really various names for the same reef—which fails to exhibit these shales at their regular horizon, may be ruled out as an impossibility.

(d) The Amygdaloidal Diabase "Marker."—This is a sheet of amygdaloidal diabase occurring in association with the Bird Reef group, at a more or less regular horizon in that group, which is itself between the Main Reef and the Kimberley Reef groups. It is a valuable sub-aid to reef correlation.

(e) The Alternating Shales and Quartzites, below the Main Reef Leader.—This reef in all parts of the Rand affects a shale footwall rock, partly only as to the section of the Rand as far as Boksburg, and wholly as to the section east and south of that place. A shale footwall is not, however, of itself characteristic, as such may be found not only below the Main Reef Leader, but also below the Kimberley Reef group, and another reef which occurs in the lower Witwatersrand system, called the Government Reef. No difficulty need be experienced in recognising the Main Reef Leader shale footwall if the succession of strata above and below be taken into account, as no other shale bed exhibits a sequence at all comparable to this one, particularly in respect to the thickness of banket beds which overlie it. The alternating shales and quartzites below the Main Reef Leader are contrariwise, almost devoid of banket reefs.

(f) The whole Section from the Main Reef group to the Elsburg Reef group, has no repetition in Rand stratigraphy, and collectively is unmistakable.

REEFS IN THE PROPERTY.

The reefs in Maraisdrift are held by all men of authority in either the geological or mining branches in South Africa to be the continuation of the formation which extends from Elsburg Reefs to the Main Reef Leader, including between those limits the Kimberley Reef, Bird Reef and the pebble beds known as the Livingstone Reefs.

(After mentioning the controversy regarding the correlation of the reefs on the Far East Rand and the "welter of evidence" in favour of identification which the Main Reef Series, Mr. Denny proceeds):—

Mellor draws attention to the fact that there may be, and are, local differences in the constitution of a given group or integral member of the section. For example,, the footwall shale of the Far East Rand is represented by what is known as the interbedded dyke in the mines of the Central Rand. The only difference between the conditions, as at the Central Rand and the Far East, is that in the latter area this characteristic rock is invariably the footwall of the Main Reef Leader, whilst in the Central Rand it is found alternating with quartzite as the Main Reef Leader footwall, more in the manner of extensive lenses which vary in width from a few inches to 100 feet, but are still irregularly continuous at the same constant horizon. These lenses of footwall shale are clearly seen on the 3,000 foot level of the East Rand Proprietary Mines, where the footwall rock is alternatively quartzite and shale. In the shallower levele in the same vicinity occurs the alleged change from the Main Reef to the Blue Sky Reef, because the footwall in said levels is wholly shale. The Main Reef Leader is easily recognisable from Roodepoort through all the mines of the Central Rand to Boksburg. It is the most persistently payable reef of the Main Reef group, although in this respect it is rather subordinate to the South Reef in the Roodepoort district. In the upper levels of the Central Rand mines it shared honours with the South Reef as a profit producer, but in the middle and lower depths of the mines it has become of paramount importance, the South and Main Reefs having partly or altogether failed to maintain pay value. Mines such as the City Deep and Meyer and Charlton, rely entirely on Main Reef Leader for their future, although in this district the South Reef was the more important gold producer in the superficial zones. Going eastward the South Reef gradually drops out of the mine development programmes, and to a lesser degree the Main Reef also, although important patches of the latter reef have been stoped as far east as the Cinderella Deep Mine. From Boksburg eastward, with the exception of some rich patches of ore found in the Chines Reef at Van Ryn, the Main Reef leader is the one surviving payable member of the Main Reef group.

The controversy respecting reef correlation has been recently enlarged. Not only is it now denied in some quarters that the Van Ryn Reef is an extension of the Main Reef Leader, but it is affirmed that the Van Ryn and Nigel Reefs have a separate existence. According to this view all the mines in the Far East Rand syncline contain both these valuable reefs.

The dual reef theorists repudiate the tracing of the Van Ryn Reef outcrop along a sharp northerly bend at the eastern end of the Modder "B" property, their assumption being that the reef passes with unchanged strike from the Modder "B" through the Modder East property, bending south-east in the farm Welgedacht. Underlying this reef, it is asserted, the Nigel Reef may be found. Fortunately there is no longer any room for controversy on this question. In earlier times, before the mine workings of the Modder "B" and the Modder East had cleared the position, the extension of the Van Ryn Reef outcrop was a matter of opinion, because the country at the east side of the Modder "B" property is overlain by younger beds, which obscure the older rock outcroppings. Now, the workings of the two mines mentioned have advanced so far to the eastward, that they have demonstrated without the shadow of a doubt tho correctness of the view held by the orthodox geologists and engineers. If the workings of the Modder "B" mine on map herewith be examined it will be seen that they turn due north at the eastern end of the mine, as the orthodox view held that they would. Similarly the recent workings of the Modder East Company run nearly due north, and have reached a point well north of the supposed outcrop of the dual reef theorists, but at a depth of about 1,000 feet, and striking at right angles to the direction in which the new school alleged the reef would run. Apart from the evidence of the mines, which is absolutely conclusive, there are numerous bore-holes on Klipfontein and Modderfontein, from which the extension of the reef can be constructed geometrically. Such a projection agrees precisely with that disclosed by the actual development on the reef in the mines above named, and therefore denies the dual reef assumption. As this important link in the theoretical projection made by the unorthodox is thus absolutely shattered, all the further differentiation of the Nigel and Van Ryn Reefs, based on the assumption of the correctness of this link, falls to the grouna, and all further argument in disproof of the theory is a work of supererogation. A recent official telegram from the Union Government stated unequivocally that the Main Reef, the Van Ryn Reef and the Nigel Reef were one and the same reef, a dictum which was indued by statements of the dual reef theorists to the contrary.

ANSWERS TO CORRESPONDENTS.

All enquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to enquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly

"J. M." (Senekal).—The gentleman in question has now returned to England

"Anxious."—Inquiries are being made.

"W. H."—(1) Yes. (2) 7½ per cent (3) See the article on the subject in this issue.

"R. C. H."—The report of the company, giving the details you desire, appeared in our issue of May 1.

HENRY S. POTTER, Ltd.

SUCCESSORS TO

THE FLOTTMANN ENG. CO. (of S.A.),
LIMITED.

COMPLETE STOCKS OF

ROCK DRILLS

AND

SPARES

ALWAYS ON HAND

Offices:—

26, Cullinan Building, Main Street,
JOHANNESBURG.

Phone 4337. Telegrams: "SHEFFOLLO." Box 5510.

ASSOCIATED SCIENTIFIC AND TECHNICAL SOCIETIES: INAUGURAL MEETING.

Important Gathering in the New Home of the Institution.

The inaugural meeting of the Associated Scientific and Technical Societies of South Africa was held last Saturday night in the institution's premises, 100, Fox Street (late Johannesburg Club), Mr. Percy Cazalet presiding over one of the largest and most distinguished gatherings of scientific men ever assembled in the country. Membership of the new body is open to societies who do not subscribe to trade union principles.

The Chairman, having briefly reviewed the progress of the movement for a joint home, said that one main reason for the desirability was that their views, voiced from united societies, would carry more weight with the Government than if represented by the societies individually, as had been done in the past. When they decided to buy the building and were faced with the difficulty of finance, they remembered the motto, "When you are in difficulties in Johannesburg go to the mines." So they had gone to their fairy god-mother.

The Administrator: "It is often the Government."

The Chairman: "In Johannesburg it is nearly always the mines." Within half an hour of seeing the Chamber of Mines their business had been settled. The Chamber said: "If you can get a first mortgage on the building for £12,500 on a business basis we shall take up a second mortgage for the remaining £10,000 on a 5 per cent. basis, and for the first two years we shall pay the interest on both these loans to allow you to get on your legs." The Chamber had further agreed that for every £ up to £10,000 the societies raised amongst their members it would pay 10s. In other words, it had promised a gift of £5,000 conditional on the societies raising £10,000. Within six weeks of embarking on their campaign for funds they had raised £2,384. About £5,000 was required to put the building in good repair, to furnish it, and start with a little working capital. Architecturally, it was feasible to add another two stories to the building; the cost would be about £10,000. With that done their ideal would be attained, as all the societies who were members could have their offices concentrated in that building. Such an institution should also have an endowment—it should not have to pay rates and taxes out of its normal income—for this £40,000 was necessary, or £50,000 in all. Ten societies were foundation members of the institution; eight had signified their absolute adherence, the other two were uncertain whether their constitutions would enable them to join. Each of these would nominate two members to the controlling executive. Then the members, as a whole, would at the annual meeting elect a president and two vice-presidents. The general committee had done him the honour of selecting him as the first president, and Dr. A. J. Orenstein and Mr. J. W. Kirkland the two first vice-presidents. The annual subscription by individual members would, during the first two years perhaps, be not more than 4s. a head, though it was hoped that donations would be on a generous scale. They would not at first be able to offer all the facilities of a club; but there would be a reading room and library, and, in the basement a restaurant for luncheons and teas. He moved resolutions: (1) For the adoption of the report of the joint committee, expressing recognition of the importance of the movement, and promising support; (2) expressing gratitude to the Chamber of Mines for its generous and timely assistance; (3) according thanks to the societies and individuals who had given financial support.

WHAT SOCIETIES ARE DOING.

Mr. W. Elsdon Dew, President of the South African Institute of Engineers, in seconding the resolutions, recalled the fact that five years ago their late President, Mr. C. B. Leslie, convened a meeting of different technical societies to formulate a scheme whereby their joint energies could be made of service to the country. That had a most beneficial effect. Members of his institute hoped to subscribe at least £2,000, of which £500 would come from their institute's funds. Within a fortnight 237 of their members had subscribed a sum of £255. That was a clear indication of their aim.

Mr. J. Gray, President of the Chemical, Metallurgical and Mining Society, reported that so far 34 members had subscribed £196 11s., and the society had donated £150 from its funds.

Mr. W. Kirkland, representing the South African Institute of Electrical Enginers, who is a trustee with Dr. Orenstein and Mr. Cazalet, said that in linking their societies together they were only following the example set by technical committees elsewhere in the world. His institute had voted £500, and their members had subscribed £100.

Others who spoke in support of the motion were: Mr. D. M. Sinclair, President of the Association of Transvaal Architects, who with Mr. R. Howden is an honorary architect to the new institute; Dr. Mackenzie, President of the Witwatersrand Branch of the British Medical Association; Dr. R. B. Young, representing the Geological Society; Mr. G. A. Watermeyer, President of the Association of Land Surveyors of the Transvaal; and Dr. J. McCrae, representing the Analytical Chemists.

The resolutions having been accepted with acclamation,

Mr. H. O. Buckle, President of the Chamber of Mines, in responding, said he had never known the Chamber to agree so promptly, that its support was thoroughly deserved. The Chamber entirely recognised the debt it owed to scientific and technical societies of the Rand, and it was very pleased at having an opportunity to manifest that appreciation in a practical manner.

Mr. R. Islip, Vice-President of the Chamber of Commerce, said that the time had long passed when industries could be carried on in any haphazard fashion. Scientific men had as great scope in commerce and industry as they had in mining.

Mr. Bernard Price, in moving a vote of thanks to the joint committee, especially those who had gone on deputations to the Chamber of Mines, remarked that as the years rolled by future members of our technical societies would think with gratitude of those who had initiated this movement. He paid a tribute to Mr. Cazalet, who had done the spade work in the movement, and who had been the leading spirit in it; also to Mr. Kirkland, who had done excellent work on the deputations.

Mr. H. W. Miller, who has been connected with technical institutions in this country for 25 years, complimented the Chamber of Mines on living up to the reputation it had made in the early days for readiness to help these societies. In a span there was always one bullock which did the pulling, and by the farmer he was usually called "Englishman." Their chairman was indeed "Englishman."

The motion having been carried with enthusiasm.

The Chairman thanked the meeting on behalf of the joint committee, and pointed out that for the institution to prosper and be of benefit to the societies and to the country it must have the active support of individual members.

His Honour the Administrator (the Hon. A. G. Robertson) then addressed the meeting as a farmer, not even a scientific farmer—though he said he was fast developing into a deviser of scientific taxation. He said that the riches of our wonderful country could not be developed by the crude and happy-go-lucky methods of the past. "We are," he continued, "only a young little nation. We do not know exactly what we are, nor what we want to be. We have not made up our minds about that. Though we are still very small numerically, this is the sort of thing that is going to make our nation big." He suggested that a problem they might tackle was to find in South Africa something that would give the world liquid fuel. Apart from wheat, nothing was more urgently required by the world. There was a shortage, and it had to be made good. If their institution could solve that problem and find some substitute for liquid fuel, then we in South Africa could congratulate ourselves. In the development of a country of the magnitude of South Africa mechanical transport must play a big part, and unless some sort of liquid fuel was found the country would not be developed as fast as it should be. He wished the institution every success.

Professor J. A. Wilkinson, President of the South African Association for the Advancement of Science, moved a vote of thanks to the Administrator, Mr. Buckle, and Mr. Islip for their attendance, which was seconded by Mr. S. H. Pearce.

Refreshments were then served, after which the constitution was explained to the meeting and adopted, and the financial statement was gone into in detail. The meeting ended with a hearty vote of thanks to the Chairman.

Mr. Reg. B. Saner has accepted the position of honorary legal adviser to the institution, and the secretary is Mr. A. Spicer, Box 1169, Johannesburg.

Fuel Research in Great Britain.

A large and admirably-equipped fuel research station has been established near London, England. It was designed by the Fuel Research Board formed under the Department of Scientific and Industrial Research, and has been built out of funds provided by the Treasury. Its main object is to carry out large-scale experiments in the low-temperature carbonisation of coal with a view to obtaining smokeless solid fuel for domestic and industrial use, gas for power purposes, oil fuel for the Navy and internal combustion engines, and a number of other by-products. Careful arrangements have been made for exact measurements in every step in the treatment. Plant has also been installed for research into the economics of pulverised coal, the utilisation of peat, and the production of fuel alcohol. A detailed survey has been made of the qualities of coal available in Great Britain; and the analysis of the samples of coal used in the experiments has been placed on a scientific basis. Important results are expected to flow from the costly investigations thus set on foot.

"SHEELEY"
TUBE MILL
LINERS.

THE EFFICIENT
LINER.

Sole Selling Agents:
RINTOUL & DAVIS,
23, Cullinan Buildings,
JOHANNESBURG.

THE OTHER SIDE OF THE CURRENCY QUESTION.

The Overshadowing Problem of Our Economic Position—Views of Mr. Samuel Evans

In dealing with the currency question in the course of his speech at the Crown Mines meeting this week, Mr. Samuel Evans said :—

As I pointed out last year, our working costs are dependent largely on the prices of commodities and the cost of living, which, in turn, are regulated by the currency policies of our own and other governments. I then referred to the conditions adverse to gold mining arising out of the substitution of paper for gold in the currencies of many of the countries of the world, and showed that measured in commodities gold in England had depreciated over 50 per cent. since July, 1914. There has been a further depreciation of some importance since, but that has been compensated for in a measure by the premium which we have been receiving on all gold shipped after the 25th July last. The importance of this matter to gold mining companies can hardly be exaggerated. What we have to realise is that the rise in prices, or in other words the fall in the commodity value of gold, is due almost entirely to the replacement of gold by paper for currency purposes and to the embargoes on the free movement of gold which has been necessitated by the War paper currency policies adopted in England and other countries. On the basis of the index numbers of the Board of Trade, *The Economist* and *The Statist*, it appears that the purchasing power of gold in England has diminished to about two-fifths of what it was in 1896 and to rather less than one-half of what it was in 1914. The purchasing power of gold in South Africa has not diminished in the same ratio as in England. We started at a different level, as in 1896 prices, rents, and the wages of Europeans here were very high when compared with those prevailing in England at that time. This consideration also applies to a lesser extent to the comparison with the position in 1914. Moreover, the prices of commodities and services here have not moved upward at the same speed as in England owing to increases in local production and the limited needs of kaffir labourers. However, taking everything into consideration, it is practically not an exaggeration to conclude that had the commodity value of gold remained stable since 1896, mining companies here would have been working to-day at a cost averaging something well under 12s. per ton. as compared with 22s. 9d. last year. and a much higher figure now. I need not enlarge on what that would have meant for the inhabitants of the Witwatersrand and of South Africa.

PAPER MONEY IN ENGLAND.

Last year I ventured to take a somewhat hopeful view of the immediate future, because there was then a consensus of opinion among authorities in England in favour of the early restoration of an effective gold standard. Unfortunately, owing perhaps to the unwillingness of politicians to depart from the line of least resistance, little has been done since June last year to bring England back to sound money. It is true that an effort is being made to keep paper money within bonds in England, as the circulation of Treasury currency notes, not covered by gold or Bank of England notes, totalled £307,354,000 at the beginning of last month, as compared with £313.810,000 in June last year.

That that effort is not enough and that English money is still redundant is proved by the fact that in the twelve months ended April last, there was an increase of over 30 per cent. in the general level of commodity prices. Notwithstanding the example of England and the fact that all the experts agree that if paper money is multiplied more quickly than production is increased, prices will go up, the South African banks have been issuing paper money at an accelerating pace. At the time the War commenced the banks had £2,150,000 of notes in circulation in South Africa. During the War they issued an additional £4.000,000 of notes, and since the Armistice they have further added about £3,500,000 to the paper circulation of South Africa. It would be difficult to conceive a more mischievous policy as far as the permanent welfare of the people of South Africa and their industries is concerned. In my opinion, the banks are sowing the seed of much future trouble. It will take many years to repair the injury which is being done. As Dr. Andrew D. White, late President of Cornell University, and other authorities have repeatedly pointed out, paper money, issued under conditions similar to those which prevail to-day in South Africa has everywhere raised prices and led to general unrest, constant agitation, interminable industrial conflicts, and even revolutionary upheavals. It has become "a highly destructive force within the field of industry, dealing a grievous blow at the instincts of frugality in the individual, and at the organisation of the industrial body for the purposes of production and exchange." The eminent Dutch statesman and economist, Dr. Pierson, strongly urged governments on no account to tamper with the currency. In his opinion, a forced loan is preferable to a disordered currency. "A disordered currency," said Daniel Webster, "is the greatest of political evils. It undermines the virtues necessary for the support of the social system and encourages propensities destructive of its happiness. It wars against industry, frugality and economy, and it fosters the evil spirits of extravagance and speculation. Of all the contrivances for cheating the labouring classes of mankind none has been more effective than that which deludes them with paper money." I am afraid that the dangerous character of the action of the banks in this matter is not at all appreciated by the Government and the Parliament of the Union. Instead of taking prompt and effective steps to make an end as quickly as it is safely possible to what Dr. Vissering, of the Netherlands Bank, describes as "the senseless creation of artificial buying power," it appears, from the debates that have recently taken place in the House of Assembly, that serious consideration is being given to measures, which, if adopted, will almost certainly have the effect of further disordering our currency and plunging South Africa deeper into the paper money bog.

THE PROPOSED MEASURES: GOLD CERTIFICATES.

In the first place it appears that it is proposed. as a temporary measure, to provide for the creation of a new kind of paper money a Government paper money, fully backed by gold, to be called Gold Certificates, which will be legal tender and inconvertible so long as there is a premium on gold for export purposes. As I understand the proposal. gold certificates will supplement, but not necessarily supplant, the existing note circulation. It is a measure to relieve the banks of the obligation to supply gold in exchange for their notes. so that any one applying to them to pay gold for notes can be given

MATTEY HARRIS,
TYPISTE, SHORTHAND & TYPING BUREAU.
Phone 5743.
9, STOCK EXCHANGE BUILDINGS,
JOHANNESBURG.

Mining Reports, Engineers' Reports, Specifications, etc., copied accurately and promptly.
Copying Work from outside districts invited.

"INVESTIGATE THE EFFICIENCY
OF
"BRITANNIA"
JACK HAMMERS
THEY WILL SAVE YOU
50% on your Steel Bill,
40% in Air Consumption.
Your Repair Account will almost disappear.
Let me give you a demonstration.
"CLIMAX SAM."

THE CLIMAX ROCK DRILL
AND ENGINEERING WORKS, LTD..
SOUTHERN LIFE BUILDINGS,
JOHANNESBURG.
Phone 2190 Box 2303

gold certificates instead. As gold certificates will have no additional value outside South Africa, the banks will be saved the loss of the premium on the gold which they have to import to replace that which is at present smuggled out of the country, and consequently when gold certificates are available, the banks will have less to fear from increases in their own note circulation. It is indeed obvious that such an arrangement will tend to encourage further inflation unless it is accompanied by provisions which will make it to the interests of the banks not only to stop issuing more notes, but also to make every effort to bring about a reduction of the existing circulation of paper money.

CENTRAL RESERVE BANK.

Another scheme which appears to be under consideration is one providing for the establishment of a Central Reserve Bank with powers to issue any quantity of paper money, provided that paper money is secured by 40 per cent. in gold and 60 per cent. in commercial bills, and is also a first lien on the assets of the bank. The proposed corporation is modelled on the United States Federal Reserve system, established at the beginning of 1914. That system is still in the experimental stage. It is pretty generally held that the note issue provisions of the Federal Reserve Banks are the chief cause of the large inflation that has taken place in the currency of the United States. This inflation has involved considerable increases in prices, and has, amongst other things, brought about a reduction of 42 per cent. in the gold production of the United States in 1919, as compared with 1915. In fact the recent experience of the United States justifies the conclusion that the establishment of a Central Reserve Bank here, with note issuing powers similar to those of the Federal Reserve system, will further inflate our currency and will, in time, lead to higher working costs and the inevitable closing down of more gold mines. In any case, and apart from all other considerations, it hardly seems a sane policy for the Parliament of the largest gold producing country in the world to enact laws encouraging and facilitating the supersession of gold by paper. If the majority of the mines of the Rand are to be kept working, not only must the upward movement of prices be arrested, but there must be a reduction in prices. This can only be accomplished by limiting and diminishing the supply of paper money.

POSITION SERIOUS.

I am speaking quite frankly as I feel that that is called for at the present moment. South Africa has reached a critical stage in this discussion; we are on the verge of a precipice, and there is, I fear, a real danger that, in order to give purely temporary relief to the banks, the wool and other industries, the Government and the Parliament of the Union may adopt a course which must terminate disastrously, however promising it may appear now. Practically every country in the world has at one time or another experimented with inconvertible paper money, often with bright and hopeful beginnings, but always with ruinous endings. There is only one remedy for the present state of affairs here and elsewhere, and that is deflation, a reduction of the quantity of paper money in circulation so as to enable us to return at the earliest possible moment to a free market in gold. Afflictions, caused by excessive issues of paper money, can only be made worse by further issues. It is like trying to put out a fire by pouring petrol on it.

It is greatly to be regretted that South Africa ever adopted paper money. Had this country, at the outbreak of the War, been using metallic money only, and had we, as California did during the Civil War, refused to have anything whatever to do with paper money, it is certain that we should have enormously benefited ourselves and would have been of far greater real help to the Empire. It would have meant for South Africa what it meant for California; steady and uniform prosperity, based on a solid foundation. The history of France, under Napoleon the First, and of the Western States during the Civil War, shows that a country that has no paper money and whose currency is gold (with, of course, token coins of silver, bronze, etc., with limited legal tender for small change), has a distinct advantage over countries with even convertible paper money, however well secured. In the adjustment of prices and exchanges there is a certain fluidity about a gold currency which a paper currency cannot possibly attain. This fluidity more than compensates for the loss involved in employing for currency purposes such a valuable material as gold. The currency of gold standard countries may be likened to water in a number of tanks, one for each country, with pipes connecting every tank with every other tank so that the supply of gold flows to where it is required as soon as it is required to adjust prices and exchanges without any government intervention. There are seasonal demands for money which necessitate a much larger circulation than at other times. Gold flows in as the exceptional demand is felt and when it subsides and less currency is required, the excess gold redistributes itself to other parts of the world.

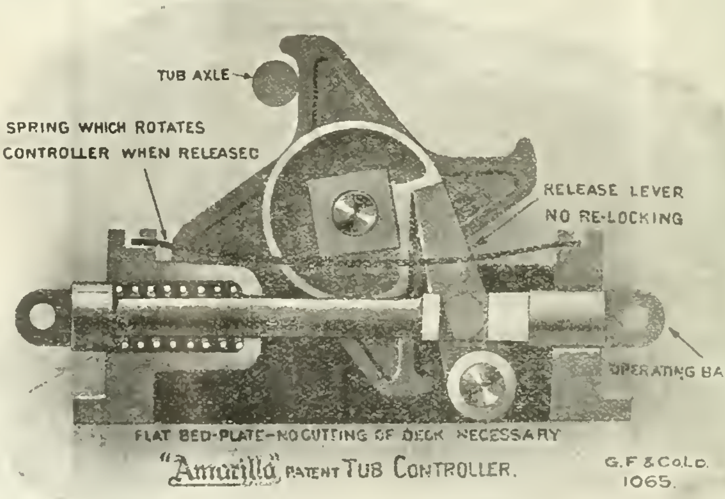
THE OUTLOOK FOR GOLD.

Although the immediate outlook in South Africa is menacing, on the whole I am disposed to take a more optimistic view of gold mining than is usually held in these days. Many people, even among

GEORGE FLETCHER & CO., LTD.
Masson & Atlas Works, DERBY, England.
SPECIALISTS IN MINE, COLLIERY AND CEMENT WORKS EQUIPMENT.

Sole Agents for South Africa: —
ASSOCIATED ENGINEERS
Co., Ltd.,
DURBAN.
Tel. Add.: "SPRINKLER."
P.O. Box 478. 'Phone 450.

Resident Engineer: — T. McNICOL.


TUB AXLE
SPRING WHICH ROTATES CONTROLLER WHEN RELEASED
RELEASE LEVER NO RE-LOCKING
OPERATING BAR
FLAT BED-PLATE—NO CUTTING OF DECK NECESSARY
"Amarilla" PATENT TUB CONTROLLER.
G.F & Co.L.D. 1065.

"AMARILLA" PATENT TUB CONTROLLER.

leading economists, believe that paper money has come to stay; that in future gold will be held mainly in the reserves of banks, that less of it will be required, and that as a result its value, measured in commodities, will remain at a permanently lower level than that of 1914. The Committee on Currency and Foreign Exchanges, over which the late Lord Cunliffe presided, stated in their First Interim Report, that they did not "contemplate a resumption of the internal circulation of gold in England." My own view is that what has happened and is happening to-day with the currencies of Europe, and notably the fact, pointed out by Mr. Frank A. Vanderlip, Chairman of the Banking Committee of the New York Chamber of Commerce, that the Bolshevists have successfully injected great masses of perfectly executed counterfeits into the paper circulation of many countries, will in a few years so thoroughly destroy the confidence of people in paper money as to compel a return to specie payments. Sooner or later in Russia, and, possibly, in other countries, pretty much the same thing will happen as happened to France after the French Revolution. No doubt in a great many instances specie payments will be resumed with a much smaller quantity of gold in the standard coins, as was done in Austria Hungary in 1892, and in Russia in 1894, but on the whole and in the long run that will be helpful and not harmful to the gold mining industry. The experience of France, whilst Napoleon was in power, justifies the conclusion that the countries that first completely abandon paper money and return to specie payments will also be the first to recover prosperity, and that their good fortune will force others to do likewise.

THE ROOT CAUSE OF OUR TROUBLES.

My excuse for dealing again at some length with this question is my firm conviction that it overshadows every other question as far as we are concerned: that the disordered condition of our currency is the root cause of most of our troubles, and that consequently the majority of the other matters with which we occupy our time are of trivial significance compared with this. To my mind, the most important and the most urgent problem confronting this community and the world at the present moment is that of the relation of currency to gold. The prosperity, the progress, and the power of nations depend largely on the correct apprehension and the honest application by their statesmen of sound monetary principles. Looking at the records of some of the backward nations of Europe, in many instances we find not that the land they occupy is deficient in natural resources, but that they have never had a trustworthy and stable currency for any length of time. South Africa has more than the average share of the gifts of Nature, by the aid of which nations have developed and made themselves powerful, but we may take it as an established fact that no people can become or continue great and prosperous if they have an uncertain and variable standard for deferred payments.

I am satisfied that the final outcome of the paper money debauchery of the past few years will confirm the soundness of the judgment of General Francis A. Walker: that the "tendency to excess under speculative impulses in the body of trade is inseparable from such a circulation" (paper money); "that the evils caused by even the slightest variation from the metallic standard far outweigh the saving in cost effected by issuing notes in excess of the specie held for their redemption"; "that consequently such money (paper money) is neither good nor cheap," and "that the best money for mankind in the present, and through any future for which the economist or the statesman feels called to provide, is a money the supply of which is determined by the cost of its production."

USE

"PORPOISE"

BRAND

ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by

South African Lubricants & Chemical Works, Ltd.,

DURBAN & JOHANNESBURG.

Phone 1618, *Johannesburg Branch Office.*

Crown Diamonds.

Mining operations for the past month resulted as follows: Number of loads washed, 10,915; diamonds recovered, 1,087 carats; yield per 100 loads, 9·95. The diamonds are of fair average quality, but have not yet been valued. The steps taken to secure an increase in the output are approaching completion, and it is anticipated that the current month (June) will show an advance in the number of loads washed.

Pioneer Machine Tool Builders.

The John Steptoe Company, of Cincinnati, Ohio, one of the oldest machine tool builders in the United States, having been established since 1845, with 75 years of experience and reputation, are the exclusive manufacturers of the well-known Steptoe shapers and milling machines, which among the trade enjoy the reputation of being "Just a little better." Thousands of Steptoe machines are in daily use all over the world, in repair shops, machine shops, railroad shops, manual training schools, shipyards, arsenals, etc., giving entire satisfaction. This in itself is a recommendation worth considering when contemplating buying machines. The manufacturers claim that the superiority of the Steptoe products is due to well-balanced design coupled with the fact that only first-class materials and workmanship are used in their construction. Each machine before leaving the factory is run under belt for a week or ten days, the same as if it were part of a shop, and during this period is subject to such a rigid examination by a corps of experts, that the manufacturers do not hesitate to guarantee their machines against defective materials or workmanship. It would be impossible to state in such a limited space the many advantages and mechanical superiority of the Steptoe shapers and milling machines. Those interested in small and medium size well-built and up-to-the-minute machine tools should communicate with the manufacturers or their sole South African agents, Messrs. Bartle & Co., Loveday House, Johannesburg, asking for detailed specifications, weights, horse power, etc., of each machine.

Rhodesia Gold Mining and Investment.

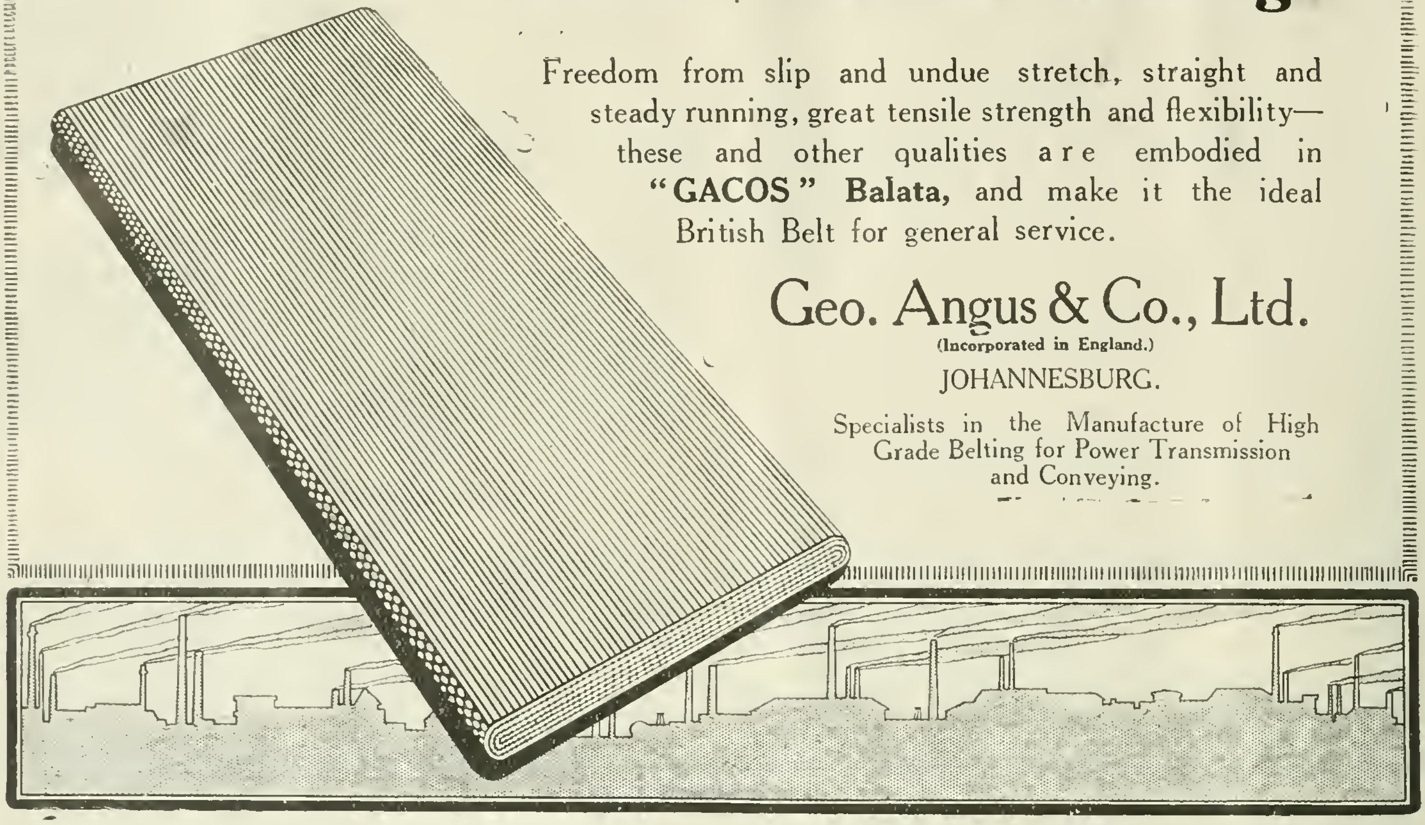
Circumstances have worked against the Rhodesia Gold Mining and Investment Company during 1919, for which year the directors' report shows a loss of £17,141, as compared with a revenue for 1918 of £17,540. As a consequence, the credit balance of £55,412 brought in is reduced to £38,271, which is carried forward. The company's principal mining holdings are in the Lonely Reef and Cam and Motor. As regards the Lonely Reef, the reef in the lowest levels compares favourably with the best sections of the shoot in the upper levels. The Cam and Motor has been concentrating its attention upon the development of the Motor Mine, and experiments have also been carried on with a view to improving the extraction of the gold from the ore. It is expected that milling operations will be re-started on this mine before the end of 1920. Amongst the other mining interests, the development of the Huntsman Mine has been attended with satisfactory results; but it has been decided to abandon the Pretty Polly and Felixburg claims.

"GACOS"-Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.



WM. HODGSON & SONS
(Weighing Machinists) LIMITED,
MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,
WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents in South Africa:—
Geo. CRADOCK & Coy. (S.A.) Ltd.
Box 316. Tel Add. "Ropes" Tel. 539.

THE KOMATI GOLD FIELDS: A RETROSPECT.—II.

[By James Cumming.]

There are two factors that go far towards the success of a gold field, and these are, first, good roads, and second, a plentiful supply of native labour. To get to the Komati is not an easy matter. The road down the Berg from Oshoek is execrable. Before the rains of the past summer the road was quite up to the automobile standard and passable, but the storm waters of the last summer months turned it into innumerable dongas which made their negotiating dangerous alike to pedestrians and beasts of burden. Consequently I had to walk the five miles down the Berg. Before the flat country was reached walking became a torture. To attempt a descent with a motor car under the present conditions would court disaster. There is great promise in the future for this mining district, and its needs in the way of transport cry out for something to be done to open up new roads and repair the existing ones. Theoretically, these are simple solutions, but they take on another hue when we come to study them from the practical point of view. The man to appeal to is, of course, the Administrator, but Mr. Robertson in his official capacity, as some of us have discovered from experience, is a many-sided individual, and has a multiplicity of affairs to attend to. But, as one who has travelled a great deal in the Eastern Transvaal and observed and studied its mineralisation, and amplified these by reading the very able memoirs written by the Union's learned geologists, I have come to this conclusion, that there are, apart from roads, three railway lines which must be built, and built quickly, in this part of the country if it is to develop as it should, to help to counteract the depressing results that are arising, and likely to arise, from the actual and prospective shutting down of the low-grade mines of the Rand. The first is that from Middelburg, via Breyten, through Swaziland to Gobo, on the Portuguese border. Secondly, a line from Carolina, or Breyten, to Vlakfontein, to tap the splendid Government plantation there, and where the Government with commendable foresight have purchased two adjoining farms on which thousands upon thousands of more trees will be planted in the immediate future. The third is from Barberton to Carolina, or Breyten, through a highly mineralised country. A glance at a map will show the direction of these lines and the grand tracts of country they would open up to the prospector, the pastoralist, and the agriculturist. At present the whole of this region is practically prohibitive because of its lack of commercial transport. It is positively deplorable. The latent wealth is there in the shape of raw materials sufficient to pay off the standing debt of the Union. Are the vested interests of the Witbank district too strong to ever allow of the Swaziland railway becoming a reality? If so, I endeavour to meet their objections by suggesting the extension of the Swaziland line through Breyten on to Middelburg. This would give the Witbank Collieries a double outlet to the coastal ports, and which, with a flat rate, would enable them to compete successfully against their great rivals, the Natal mines for the bunker and overseas trade. In any case nothing, even of this kind, should stand in the way of the immediate construction of the Swaziland railway. It was promised solemnly long ago. Its realisation has been long deferred.

The words of the Canadian Prime Minister, when speaking at Edinburgh come very aptly in here. He said: "I hope our eyes may be turned more closely upon the vast and varied resources of our Empire and their future potentialities. These are questions of the gravest import touching their control, development and utilisation." Nor are the words of Sir George Foster any the less applicable: "The thing we have to do is to conserve and develop our resources for Empire growth. Within the Empire there is ample scope for our best energies and our best equipment." These are burning words, and the longer we delay in putting them into execution the deeper the brand called neglect will sear our public conduct. All this is irrelevant. Let me to my theme. The deserted houses of Steynsdorp and the silent mines of the Komati made a deep impression upon me. Had I gone a year or more ago I would have seen and left the valley with an unforgettable impression. Machinery was then lying as it had lain for twenty and odd years until the buyer of old iron came along and made a clean sweep of the lot. Memory has a habit of clinging to old machinery. Not like old clothes. It takes on a look of vitality and compels one to grieve over this and that working wanderer now lost sight of and forgotten. I was startled in my musings by my friend saying: "This was once the Pritchard Street of Steynsdorp." We were walking in a narrow kafir footpath. When my friend broke in upon my thoughts I stood amazed and looked around. Nature had done her share to obliterate the spot where stood the once sprightly mining camp or town of Steynsdorp by ferociously overgrown grass, out of which, here and there, peeped bare broken-down walls of what once were dwelling houses three decades ago. The

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent

IRON

AND

STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

ruins had a strange fascination for me. 'Tis true they were not built by King Solomon. There is no " Temple of the Sun," for instance, yet even the humble ruins of Steynsdorp are of more than passing interest. How far away seemed the glorious hopeful days of the occupants of these dwellings which stood there where only the bare crumbling walls remain. " There," said my fritnd, once a resident of the vanished dorp, " stood the residence of the Gold Commissioner," and close by was the " estate " of Dr. Wiggins. There still stand the remains of what must have been in these days a stately building, judging by the remaining walls and foundations, around which grew beautiful flowers. " There also are the walls of the old Komati Hotel, kept by Mr. Vos, and not far away stood the Beaconsfield Hotel. The Horse Shoe was run by a Mr. Rosenbloom, the Three Stars by Mr. Olsen." " There must have been plenty of hotels and canteens in these days." I queried. " Yes," responded my friend, " there were far too many; in fact, they were the curse of the place and helped in a great measure to send the Komati to its doom." " Steynsdorp," I suggested, thinking of its ever ever " wets," " must have been, in the words of Milton, ' a flowery lap of some irriguous valley.' " " The Standard Bank had a branch managed by a Mr. Angus. The town boasted of four bakers, and the staff of life (in striking contrast to these post-War days) was attainable at 3d. for a 1 lb. loaf." It boasted of a printing office, from which a *Herald* was issued once every week under the editorial censorship of my old Boer War confrere, Mr. George Adamson, who subsequently edited the *Rand Daily Mail*. The Government Buildings were located, from which the then Landrost, Mr. Von Brandis, son of the late Captain Von Brandis, of Johannesburg, measured off justice to erring miners and natives alike. The only village blacksmith was Tom Osborne. The Post Office and Telegraph Office sites and ruins were next pointed out, and last but not least, the Stock Exchange. Steynsdorp truly lay in ruins. There stood the walls within which her treigs, her mining magnates, her political economists, her mining captains, her wise men and her mighty men made play with their minions. The very thought of their once short-lived importance and splendour contrasted woefully with the deserted and contemptible unburnt brick walls. Yet, at the sight of the ruins one's memory involuntary wandered back to the days of the town's activity, where every Saturday the mining community gathered in a manner much after the late John Macnamara's clientage in his Share Exchange in Commissioner Street, and bought and sold their local stocks as their moods moved them. The Stock Exchange must have been a more pretentious structure than the wood and iron shanty that did duty as an Exchange in Johannesburg in 1887 and which stood on the spot where the noble building of the Corner House stands to-day. One feels better after lifting the veil and dwelling on what " must have been " than resting the eyes wearily on spectral walls which betoken scenes of desolation. There is only one house left intact. It is a kind of hermitage amidst the " Ruins of Babylon," and funnily enough there is an occupant like unto Elzear who can listen to the echoes of his own footfalls as no one else is present to break in upon his loneliness. He is a Government official, Postmaster of the ruined Steynsdorp, and the only letters the recluse receives are usually for himself. He is somewhat after Hank Fink pictured by Ralph Connor, with this difference—he owns a one-stamp mill instead of a store or ranch. He is the whole community rolled into one, as he is the only citizen, and he is a cultured and an artistic gentleman.

[The first article appeared in our issue of the 22nd May, 1920.]

Zaaiplaats Tin.

The results for the month of May, 1920, were: Mill ran 7 days; concentrates won, 25 tons; estimated profit for the month, £1,006 14s. 6d.; capital expenditure, £81 15s. 2d.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

SOUTH AMERICA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

HEAD OFFICE:
MONTREAL, CANADA

ARGENTINE — Buenos Aires.
BRAZIL — Rio de Janeiro, Santos, Sao Paulo.
URUGUAY — Montevideo.
VENEZUELA — Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA — Barranquilla.
BR. GUIANA — Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON — Princes St., E.C.
PARIS — 28, Rue du Quatre-Septembre.
NEW YORK — 68, William St.
BARCELONA — Plaza de Cataluna 6.

THE ROYAL BANK
OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - $500,000,000

A PLEA FOR THE ABOLITION OF THE DAY OF REST.

How the World Might be Rehabilitated—Seven Days' Work a Week for a Year—A Novel Proposal.

[*By a Special Correspondent.*]

[*It should be clearly understood that we do not hold ourselves responsible for our correspondent's unorthodox views.—Ed.*]

After four and a quarter years of a most terrible and devastating War the world is slowly but surely recuperating. The period of convalescence has, however, been marked by civil commotions, riots, strikes, financial chaos and universal discontent, which have delayed the recuperation and caused many relapses. The recovery is too slow, and no one will deny that the causes of the ferment of dissatisfaction are high costs of living, shortages in houses, in food, in clothing, and the general necessities of life. Call it what you will, call it Bolshevism or call it a cycle of political and industrial unrest, the fact is that decreased output reacting on the War-shocked nerves of mankind is responsible for the turmoil and trouble of this petulant planet of ours. Most thinking people are agreed on this, and most people who have been endowed with a fair proportion of cerebral grey matter realise that if the world's recuperation is to be accelerated in any way it is most essential that production should be speeded up. But the point is, how to achieve this. Once one ventures any practical suggestion which is calculated to improve matters, a storm of opposition is immediately aroused—generally by Labour—that is to say, by the very people who suffer most by scarcity of houses, scarcity of bread, dearness of clothes, and so forth.

The Examples of Germany and the U.S.A.

In Germany the workmen have agreed to labour one extra hour a day in order to pull their Vaterland out of the mire of bankruptcy into which the Hohenzollern despots have driven it. In America one hundred millions of people have gone dry in order to make Uncle Sam an even more prosperous person than he is at present. Would British labour accept another hour a day or go on the "water wagon" in order to restore the trade conditions of the Empire, to correct the depreciation of the English pound, and to catch up on the lost time of four and a half years, when British brains, British blood, and British ships and shells were all consecrated to the great and noble but unproductive task of winning the War? Would British labour accept teetotalism as the means of increasing the output of mine and farm and factory? We should probably hear a great deal about the re-imposition of slavery and of the State's interference with the rights of the subject and his beer, if such suggestions were made by authority. But no one can doubt that houses would be more plentiful, bread less scarce, and clothes not so costly if the British workman rose an hour earlier and did not have his labouring efficiencies dissipated by alcohol.

A New Proposal.

The suggestion I am going to make here, however, is going further than this, and therefore it will probably receive more opposition. It will be opposed by the Church as well as by Labour and by all those queer fangled brains which believe that the less a man works the more he will produce. The Church will not favour the suggestion, because it negatives one of the principal doctrines of the Church, and Labour will certainly denounce the idea because it is in combat with one of the fallacious principles on which modern labour takes its stand. The proposition is simply this, that for a whole year the world should work seven days a week. What would this mean? It would mean that the output of mines, of factories, of shipyards, and of canning works and every other source of production would be increased by one-seventh. It would mean that the production of the miner, the farmer, the mason, the bricklayer, the collier and the iron worker would be accelerated by 14 per cent. The critics will, of course, retort that the world could not stand the strain and that production would decrease instead of expand. They will cite that bit of fallacious history which tells us that immediately after the French Revolution the First Republicans sought to abolish Sundays but found that the people could not stand the cumulative pressure of seven days' toil a week. Labour with its ideals of a minimum of work, a maximum of holiday, and a superabundance of pay will denounce the proposal as being capitalistic and tyrannical. The Church will retort that the seventh day is the Lord's. Well, the women can go to church. The men can go too—in the evenings—and still satisfy the flimsy definition of a Christian as it is accepted by so many "respectable" and church-going families. Labour cannot blind itself to the fact that in those 52 extra days snatched from Time there would be a tremendous added output if the workers would but agree to a year's penance in which to rehabilitate the world. And as to the historical critics, times have changed much since the days of the First Republic. There are far more opportunities for healthy recreation in the evening or on Saturday afternoons, and it is not proposed to interfere with the after-hours' period or with that sacred inheritance of the British workman, the Saturday afternoon. Seven days' work a week for one year only. Would it not be worth it?

Springs Mines.

The following cable was despatched on June 12 to London for publication: Reef struck in No. 3 shaft at a depth of 3,466 feet, the average value of the shaft section being 0·3 dwt. over a width of 61 inches.

Roberts Victor Diamonds.

The result of last month's tailings washings is as follows: Number of loads washed, 22,341; diamonds recovered, 2,125¾ carats, being an average of 9·5 carats per 100 loads treated. The diamonds have not yet been valued.

PHONE 4673 BOX 3162

OSBORN'S
"HAND AND HEART" DRILL STEEL
Solid and Hollow.
LARGE STOCKS CARRIED LOCALLY
SAMUEL OSBORN (South Africa) Ltd.
SHEFFIELD & JOHANNESBURG.

PERSONAL.

Mr. H. C. Boyd left Johannesburg this week on his way to England, to enjoy a well-earned rest after many strenuous years on the Rand as chairman and director of mining companies of the Central Mining-Rand Mines group.

* * * *

At the annual meeting of the S.A. Institution of Engineers, the Institution's Gold Medal was awarded to Mr. Hy. S. Potter, the Central Mining-Rand Mines award was presented to Mr. T. H. Bayldon, and the Ingham Prize to Mr. G. M. Clark, past president of the Institution.

* * * *

In connection with the note appearing in our last issue on the Transvaal and Delagoa Bay Company's pyrites enterprise in the Upington district, it should be noted that the name of the consulting engineer is Mr. E. M. Weston, and the manager in charge of the mine is Mr. W. M. Prout.

* * * *

The following gentlemen have joined the directorate of the Anglo American Corporation of South Africa, Ltd.: Mr. Walter McDermott, in his capacity as Chairman of the Consolidated Mines Selection Co., Ltd., Mr. Walter Edward Hudson, Mr. Frederick Richard Lynch, Mr. William John O'Brien, M.L.A.

* * * *

The S.A. Institution of Engineers have authorised a donation of £500 to the cost of the Associated Scientific and Technical Societies of South Africa Building in Fox Street, Johannesburg. It was announced that a further £247 had been received from 25 members, while the Institution wished to raise £2,000 in all.

* * * *

The secretary of the Globe and Phoenix Gold Mining Company announces that the following gentlemen, Mr. Braz Monteiro de Barros, Capt. H. Newton Knights, M.P., and Mr. James Craig, have been co-opted to the board of the company. The above trio replace, of course, Earl Russell and his two colleagues, whose resignations have just been announced.

* * * *

Mr. F. W. Mills, chief electrical engineer of the S.A.R., left Capetown by the "Edinburgh Castle" on the 4th June on an extended tour through Europe and America, the object being to inquire into the organisation and working of established electric lines and to consult with Messrs. Merz and McLellan, consulting engineers, London. Mr. Mills will probably be absent for a period of from eight to nine months, and will be relieved by Mr. T. P. Pask, assistant electrical engineer, during his absence.

* * * *

The list of certificates issued by the Mines Department for the period ending 12th June, 1920, is as follows: Mine Managers (Metal Mines): W. Allen, R. Bendall, V. C. H. R. Brereton, G. H. Duggan, H. W. Graham, E. W. Hammond, E. W. Hancock, W. R. Hill, F. L. Keeny, L. McClure, T. R. Ness, K. Richardson, D. B. A. Schuitema, H. W. Unwin. (Collieries): T. H. Brierley, T. Davies, G. W. Lyddon. (Non-fiery Collieries): J. H. P. Bilbrough. Assayers: J. A. Boyd, W. D. Jack, J. F. Morris, R. J. Neilson, J. M. Thorburn, T. L. Thorne, A. A. Wood.

* * * *

The interest shown by Sir Otto Beit in the progress of medical research has been given practical expression to on various occasions, notably in connection with the magnificent endowment of the Wernher-Beit Fellowships in medical research established in England. During his sojourn in Johannesburg lately Sir Otto Beit took occasion to visit the South African Institute for Medical Research, in the work of which he obviously took a keen interest. He has now intimated to the chairman of the Board of Management (Mr. P. Ross Frames) his intention to donate a sum of £4,000 towards the endowment funds of the Institute. A further contribution of £1,000 to be similarly applied has been received from Messrs. Breitmeyer & Co., of Kimberley and London.

The following were elected at the annual meeting of the South African Institution of Engineers as officers for the ensuing year, viz.: President, Mr. J. Whitehouse; vice-presidents, Messrs. R. C. Atkinson and J. W. Kirkland; hon. treasurer, Mr. Edward Goffe; auditor, Mr. F. W. Bompas; hon. solicitors, Messrs. Hayman and Godfrey; members of council, Messrs. W. Buchanan, R. Craib, D. M. Davidson, J. H. Dobson, W. Martin Epton, P. M. Newhall, John Orr, O.B.E., T. G. Otley, Henry S. Potter, A. Robertson, J. J. R. Smythe and J. J. Wessels. Mr. W. Elsdon-Dew was the retiring president and *ex officio* a member of the council; Mr. Alpheus F. Williams, De Beers Consolidated Mines, Ltd., was elected to represent the Kimberley branch on the council.

* * * *

The next monthly meeting of members of the Geological Society of South Africa will be held in the Council Chamber, Chamber of Mines, Johannesburg, on Monday evening, 21st June, 1920, at 8.15 p.m. The following papers will be open for discussion: "The Karroo Dolerites of South Africa," by A. L. du Toit, D.Sc.; "The High Level Diamond-Bearing Breccias of Diamantina, Brazil," by Mr. David Draper (honorary member); "Note on the Volcanic Origin of the Salt Pan on the Farm Zoutpan No. 467," by Dr. P. A. Wagner, D.Eng., B.Sc.; "A New Occurrence of Vanadinite in the Marico District, Transvaal," by Dr. P. A. Wagner, D.Eng., B.Sc. The following paper will be read: "Distribution of the Pebbles in the Rand Banket, and other Features of the Rock," by H. Pirow, B.Sc.

* * * *

According to a Reuter cable, Mr. Perry Svenson has arrived from Washington, en route for Johannesburg, where he will open an official American commercial bureau. Mr. Svenson declared that the action is due to the friendly attitude shown by South Africa to the United States, coupled with the big commercial opportunities there. The United States has hitherto conducted three trade investigations in South Africa, the first in 1912 in connection with cotton goods, the second in 1915 in connection with agricultural machinery, and the third an investigation in connection with electrical goods, was still proceeding. Mr. Svenson declares that trade between South Africa and the United States was steadily increasing every year, and he expressed the opinion that a permanent commercial bureau will greatly stimulate the relationship between the two countries.

* * * *

Mr. Percy Cazalet, for the last ten years one of the consulting engineers to the Central Mining-Rand Mines group of mines, and before that manager of the Nourse Mines and Nourse Deep for some twelve years, retires next Saturday from full time employment, after a spell of over 27 years on the Rand. He proposes residing in the Eastern Transvaal, on the White River Estates near Nelspruit, but will be coming up to the Rand for a few days each month, as he intends to continue to practise his profession of mining engineer in a consultative capacity, and will then be found at his new office on the 5th floor, National Bank Buildings, or the Rand Club. Mr. Cazalet has joined the Board of the Transvaal Citrus Farms and White River Estates, amongst other companies, and at the request of the executive is retaining the chairmanship of St. George's Home for Boys, with which he has been connected since its inception. He was lately elected first president of the Associated Scientific and Technical Societies, which institution has just become incorporated and taken over its new premises in Fox Street, and of which movement he has been one of the leading spirits throughout the initial stages.

The Bulawayo Municipality have definitely decided not to take over the present electric lighting scheme but to instal their own system. Mr. Clifford Jones, M.I.E.E., of this town, has been appointed consulting engineer and is at present drawing up the necessary plans and specifications. Mr. Clifford Jones is also advising the Municipality of Salisbury upon their electric lighting scheme.

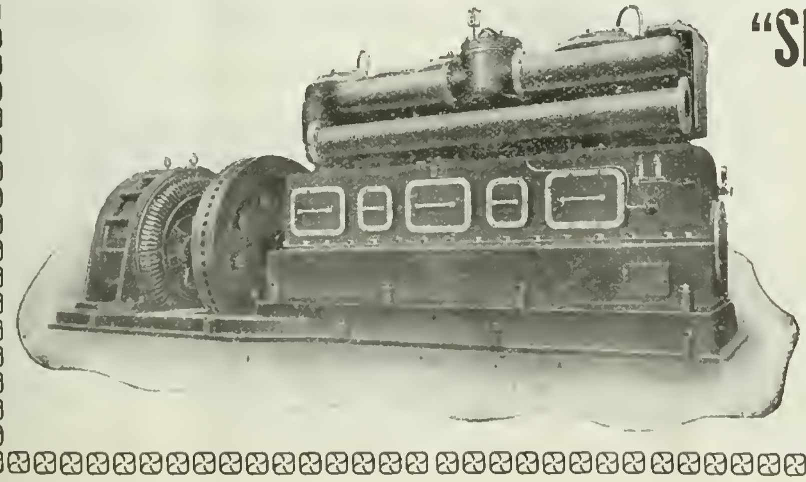
Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

The "New Geology" on the West Rand.

To the Editor, *S.A. Mining and Engineering Journal*

Sir,—Since my last letter *re* the West Rand reefs, which you were kind enough to publish, I have been busy prospecting on several points on the Main Reef horizon extending through the Krugersdorp township. East of Krugersdorp on the southern portion of the farm Mooigelegen, 2,000 feet north of the Luipaardsvlei Station and 1,700 feet south on the dip of the Government Reef series, I have cut several trenches; in some of them I located the Main Reef series of reefs, consisting of the North Reef, the Main Reef and its Leader, the three reefs lying close together, having a thickness of 50 inches. This reef section dipping at an angle of 60 deg. south represents the Van Ryn in some of the mines on the East Rand. West of Krugersdorp on the south-eastern portion of Waterval 74 on the extension of the Main Reef horizon on the Lesser block of claims, the Main Reef series has widened out and also consists of three reefs striking south to north, being tilted on their outcrops, the true dip being east, the Main Reef being up to 40 inches and the Leader 22 inches thick, with a parting of 15 inches; the parting between the Main and North Reef is 45 feet, the North Reef having a thickness of 11 inches. I have now located a dyke about 65 feet thick on the dip of the Main Reef Leader, at a distance of 70 feet. I have put boys on to sink on the upper contact of the dyke. Years ago a vertical shaft 150 feet deep was sunk on the lesser block, and the Main Reef series of reefs was cut in the western drive; the eastern drive was stopped in a dyke, which in my opinion underlies the South Reef. Permission was granted to me by the Municipality of Krugersdorp to cut a trench south of the Police Station, in which I discovered the indication of the South Reef with a bastard reef overlying undulated a dyke. I am driving on the hanging wall side of the dyke to cut this section on the dip. On the dip of this trench on a block of claims secured by the Lesser Ore Red. Co., Ltd., indications are found for the location of the Bird Reef lying north of the West Rand Consolidated Mines. On this new line of Main Reef series of reefs two boreholes were put down before the War, one by the Champ d'Or G.M. Co. north of their property, and one by myself on the Lesser block. The Champ d'Or borehole was, as can be seen to-day, too near the edge of the Main Reef series; the drill went down about 125 feet before making any core and intersected the Main Reef footwall, thus missing the Main Reef. The borehole on the Lesser block being 1,200 feet was put down too near the outcrop of the Main Reef series to strike the South Reef. When the hole was surveyed it was found deflected by about 400 feet, the hole was on a 60 deg. incline, and instead of the drill going west it went north along the strata, thus both the Main and South Reefs were missed. Lately Mr. W. Bleloch, of Johannesburg, after having inspected my prospecting works, pointed out to me the position of the Modder West Reef as found on the East Rand in our Rand strata. I took his advice and did some prospecting work, with the result that yesterday I located the Modder West Reef in the valley two miles east of Krugersdorp, having a thickness of 24 inches stricken east to west, dipping at an angle of 65 deg. south. The position of the reef and its structure is such that it cannot be correlated with any other reef in our Rand strata. The true Main Reef series of reefs and the Modder West Reef have now been proved to traverse the township of Krugersdorp in an east and west direction, dipping south. Dr. E. T. Mellor, D.Sc., F.G.S., M.I.M.M., the designer of the latest geological West Rand map, has placed in his map the Main Reef in the Krugersdorp mining area in the horizon of the Kimberley reefs, whereas to-day we are finding the Main Reef series of reefs and the Modder West Reef in a horizon in the Rand strata, which is marked on Dr. Mellor's map at the horizon of the (quartzite shale group) Jeppestown series. The new discovery of the Main Reef series of reefs on two points east and west of Krugersdorp on an eight-mile long horizon and the discovery of the Modder West Reef should prove that not a single map by our geologists and experts on their West Rand section has proved to be correct. There are many Rand problems, in my opinion, unsolved in connection with the formation and forming of our Rand strata, and I wish to mention a few of them. How was it possible for the amygdaloidal diabase overlying the Elsburg series of reefs exerting such enormous pressure on our upper Rand strata without the overlying covering sheet, the dolomite and Black Reef series? In my opinion without such the diabase would simply have overflown our Rand beds. Why are the two sheets, the dolomite and Black Reef series conformable to each other overlying as one sheet unconformable to our Rand beds, whereas in contact with the basement granite we find them conformable to the granite? In my opinion these two sheets were lifted from their basement by the formation of our Rand strata and amygdaloid diabase, and were broken up in anti and synclines and forming basins, as we find them to-day. Now the question arises, at what period got the gold and other mineral veins into the dolomite and Black Reef sheet? Was it before our Rand beds came into existence, or after? I should say, when the two sheets were conformable to the basement granite before the Rand beds were formed, because the mineral veins and diorite sheets and dykes in the dolomite and Black reef series are in no way connected up with the underlying Rand beds. The dolomite having in some parts a thickness of about 3,500 feet, and the upper Rand strata



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessibility, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

underlying the dolomite being up to 20,000 feet thick. Now the dolomite being a deep sea deposit, was it possible to form at a depth of about 23,500 feet in a channel or on a seashore below water level, our Main Reef series of reefs lying to-day on the so-called shale or mud-bed. In my opinion it was impossible to form any banket reef, because the quartz and any other pieces of rock coming down in that channel or sea to form into pebbles would have sunk into the mud-bed, and if there would have been a water current, which was not the case at such a depth, strong enough to move back and forward the quartz pieces to form pebbles, the mud-bed certainly would have got on the move first and the Main Reef series of reefs would consist of unrolled pieces of quartz without a shale footwall. The so-called Witpoortje break cannot be explained with the present Rand geology as laid down, because if you look at the geological maps, still better on the ground, you will find the Government Reef north of Roodepoort township with its western extension far too long to fit into a line with the outcrop-end of the Government Reef east of the Witpoortje Station. Another occurrence we have on Waterval 74 west of Krugersdorp, which also cannot be explained; there the beds of the Government and Main Reef series of reefs were pushed from their original position against their underlying beds, towards the basement granite. Thus the original curve of both sections was considerably extended, the series of reefs not allowing themselves to be stretched, and being sedimentary beds as laid down by our Rand geology, should have been torn and several parts of these sections missing; instead we are finding faults and breaks, but nothing missing. Shortly after the Anglo-Boer War Mr. Sawyer, one of our eminent experts, read a paper before the Geological Society, wherein he mentioned that he had seen on the Far Western Rand certain formation of pebbles, etc., on the contact of the Black Reef with the granite. Mr. Sawyer asked the members of the Society whether any one of them had seen such occurrence. They replied in the negative, and the discussion was dropped. In my opinion, if Mr. Sawyer had followed up and further investigated what he had seen, he would have, undoubtedly, unlocked the door for a new Rand geology to come forward; he had found the key, but made no use of it. When I inspected my drill cores on the West Rand I found the markation of pebbles in the blue quartzite hanging wall 10 to 15 feet above the reef by using a strong light, a good glass and keeping the core clean and wet during inspection; it puts you in a position to tell the drillmen to go slow and carefully towards the reef. There the question arises, how did this markation in very fine lines get into the hanging wall above the reef? There are many points which can be brought forward in support of a new Rand geology, which also will cast aside the famous unbelievable gold-infiltration theory, and will account for the gold and diamonds found in our Rand beds and banket reefs. The pick, shovel, diamond drilling and years of field work have proved to me how the formation of our Rand beds came into existence, and in my opinion the Rand banket beds when first seen gave our geologists and experts a wrong impression about their structure and origin; on this impression a geology was built up leading to many theories and discussions. Will you kindly again, for the benefit of the mining public, insert the above in your valuable paper.—Yours, etc.,

E. KUMST,
Consulting Engineer.

P.O. Box 15, Luipaardsvlei,
June 10th, 1920.

The Position at the Roodepoort United.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—We beg to inform you that the following cablegram has been despatched to-day to the London office of the Roodepoort United Main Reef G.M. Co., Ltd.: "In view financial position of company and impossibility under existing conditions of continuing mining operations except with probability of further substantial losses, board has decided to stop all shaft sinking and development and extract remaining pay ore during next few months, whilst removing from workings valuable material. The scheme involves retrenchment 50 Europeans with total estimated saving wages stores and development of about £3,000 per month, and continuance for few months depends on maintenance with reduced labour force of existing tonnage and continuation approximate present premium on gold. Meeting was held last week on property with all employees, when position fully explained and retrenchment unanimously accepted."—Yours, etc.,

General Mining and Finance Corporation, Ltd.,
ARTHUR FRENCH.

Johannesburg,
15th June, 1920.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 1047. Telegrams: "THAINE."

TRADE MARK

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg, Bulawayo and Salisbury.

THE WEEK IN THE SHAREMARKET.

Good Effect of Reduced Bank Rate—Dividend Declarations—Modder Easts and Frank Smiths Improve.

THE market during the past week has exhibited a considerably firmer tendency. Reduction in the Bank rate means an immediate and direct saving to the Industry of one per cent. of its production, and in well-informed quarters it is believed that a further reduction is imminent. This favourable aspect of the difficult exchange problem, coupled with the declaration of the dividends, has induced a more hopeful feeling in regard to the outlook as a whole. Dividends, although disappointing in some instances, are generally considered satisfactory in so far as those announced to date are concerned. The New Modder distribution of 4s. 6d. per 10s. share is the best dividend this company has so far declared. On the other hand the Modder B.'s distribution of 6s. 6d. per share is 3s. less than in December last, but at £6¼ the shares of this company appear to be an attractive purchase, the more especially so as the position at this property is improving and profits are likely to increase. Modder Deeps have had a small advance up to 49s. 6d., but have subsequently weakened slightly. Springs are dull at 39s., the dividend for the half-year being only 5 per cent. as against an anticipated distribution of 7½. Elsewhere in this issue we comment at some length on the half-year's distributions. Of the non-dividend paying stocks, Modder Easts have provided the feature. The shares began to move sharply upwards last week-end and after touching 25s. 6d. are slightly easier at 24s. 10½d. Options and debentures have moved correspondingly. Diamonds have been a very active feature, especially Frank Smiths, the price of this stock advancing sharply to 15s. 6d. with the options about 6s. behind. It is understood that returns from this property are very satisfactory. Roberts Victors have been done at 17s. on news of a satisfactory reconstruction scheme for the re-opening of this mine having been agreed on. New Elands, too, have had a good rise and are quoted at 72s. 6d.—80s. Pretoria Cements are very firm at 108s. to 110s. African Oils are in fair demand around 15s. Colliery stocks are being quietly acquired, and Transvaal Silver and Base Metals are at 40s.—42s. 6d., lower presumably on account of the fall in the price of silver.

	Fri. 11th.	Sat. 12th.	Mon. 14th.	Tues. 15th.	Wed. 16th.	Thurs. 17th.
Anglo-Amer. Corp.	34 0*	34 6	34 0*	35 0	34 0*	34 6
Apex Mines	—	—	7 0†	—	6 9†	—
Bantjes Cons.	2 6*	2 6*	2 6*	2 6*	2 6*	2 6*
Blaauwbosch Dmds.	80 0†	—	—	—	—	80 9†
Brakpan Mines	48 0*	49 6*	49 0*	51 3	—	47 6*
Breyten Colls	—	—	—	8 0*	—	—
Brick and Potteries	—	5 6*	—	—	—	5 6*
Bushveld Tins	1 0*	1 0*	1 0*	1 0*	1 0*	1 0*
Cassel Coals	—	35 0†	—	—	—	—
Cinderella Cons.	6 0†	—	5 0†	—	5 0†	5 0†
City and Subs.	5 3*	—	5 0*	—	5 0*	5 3*
City Deeps	44 0*	44 0*	47 6†	49 0	49 6†	47 0
Clydesdals Colls.	23 0*	—	21 0*	—	—	25 0
Con. Investments	—	—	—	25 0*	—	27 6†
Con. Langlaagtes	—	16 0†	—	—	16 6†	—
Con. Main Reefs	11 0†	11 6*	11 6*	11 6	11 6*	12 0
Con. Mines Select.	—	—	—	23 0†	—	—
Coronation Freeholds.	1 2*	—	1 3*	1 3*	1 3*	1 3*
Crown Diamonds	8 0*	8 3*	8 6*	8 7½	8 9	8 3
Con. Diamonds	33 0*	—	—	35 6*	—	36 6†
Daggafontein Mines	10 3*	10 6*	10 3	10 0	10 0	9 0*
Do. Opts. (5 yrs.)	1 9	1 6*	2 0	1 6*	2 0	2 0
E.R. Coals	2 3*	2 3*	2 3*	2 4*	2 3*	2 3*
E.R. Deeps	—	—	1 0†	1 0†	1 0†	1 0†
E.R. Proprietary	6 3	6 2	6 0*	6 0	5 0*	6 3†
Eastern Golds	1 0†	1 0*	1 0*	1 0*	1 0*	1 0*
Frank Smith Dmds.	13 9	14 0	14 3	15 6	15 3b	15 0
Geduld Props	38 3*	38 6*	39 9	41 0*	40 0	39 6
Ginsbergs	—	—	—	1 0*	—	—
Glencairns	—	—	—	1 3*	1 0*	1 0*
Glencoe Colls.	—	—	—	—	—	7 0
Glynn's Lydenburgs	—	—	10 3*	—	—	—
Govt. Areas.	86 3	85 9b	85 6	86 3	86 3	86 0
Hume Pipes	22 6*	22 9*	22 6*	22 9*	—	22 6*
Jh. Bd. of Ex.	37 6*	37 6*	37 6*	37 6*	37 6*	37 6*
Jupiters	2 3*	2 0*	2 3*	2 9	—	—
Klerksdorp Props.	2 0*	2 0*	2 0*	2 3*	2 0*	2 0*
Knight Centrals	3 4*	3 6	3 4*	—	3 4	3 6
Knights Deeps	4 9*	4 9	4 0*	4 9*	—	—
Kaalfontein Dmds.	0 3*	0 3*	0 3*	0 3*	0 3*	0 4*
Lace Props.	9 9	9 6*	9 3*	9 3*	9 6	9 3*
Leeuwpoort Tins	17 6*	18 0*	17 6	17 6*	18 0	17 6*
Lydenburg Farms	8 0*	8 3	8 0*	8 1*	8 3	8 1*
Middelvlei Estates	—	—	—	1 0*		—
Modder B.'s	123 3*	122 6	122 0	125 0	123 0	122 0*
Modder Deeps	47 9	47 9	47 9*	49 3	49 3	49 3b
Modder Easts	24 3	25 3	25 3	25 3	24 9	24 10½
Do. Opts. (3 yrs.)	2 5	3 3	3 2	3 1	2 7	2 10
Do. Opts. (4 yrs.)	8 1*	8 11	8 7	8 3	7 4	7 6*
Modder Wests	—	18 3†	—	17 6†	17 6†	17 6†
New State Mines	26 6	26 6*	26 9*	27 0*	27 6*	28 6
National Banks	265 0†	—	—	—	270 0†	260 0*
New Roksburgs	—	—	1 6*	1 6*	1 6*	1 5*
New Era Cons.	—	8 3*	8 3*	—	—	—
New Geduld Deeps	1 7*	—	1 7*	1 7*	1 7*	1 7*
New Kleinfonteins	6 9	7 0	8 0	7 0	7 0	7 0
New Heriots	—	8 0†	—	—	—	—
New Modders	68 6	68 0	68 3*	69 6	69 6	70
New Primrose	—	—	—	3 6†	3 6†	3 6†
New Unifieds	—	—		3 6*	—	—
Nigels	—	—	—	—	9 6†	—
Nourse Mines	7 0*	6 6*	6 6*	7 0*	8 0*	10 0†
Pretoria Cements	106 6*	107 0	—	107 6*	108 0	108 0*
Princess Estates	0 5*	—	—	—	—	1 9†
Rand Nucleus	1 3*	1 3*	1 3*	1 3*	1 3*	1 3*
Randfontein Deeps	5 6*	5 0*	5 0*	5 7*	5 0*	5 0*
Randfontein Est.	—	—	—	18 0	17 6†	18 0b
Roberts Victors	15 9b	16 3*	16 6	17 0	16 9*	16 6*
Roodebergs	8 0*	8 0	—	7 0*	7 0	8 6
Ryan Nigels	—	3 3*	—	3 3*	3 0*	3 3*
Shebas	—	—		—	2 0†	—
Rouxville Dmds.	24 3	24 6	25 0†	—	24 0†	—
South Van Ryns	7 6*	7 6*	7 6*	7 6*	7 3*	7 3*
S.A. Alkali	20 3*	21 0*	20 6*	20 6*	21 0*	21 0*
S.A. Townships	10 0*	11 0†	—	—	11 0*	10 9
Simmer Deeps	—		1 0†	1 0†	1 9†	0 6*
S.A. Breweries	—	—	—	32 0†	—	—
Springs Mines	40 0	39 6	39 9	39 6	39 0*	39 0
Sub Nigels	14 9	14 6*	14 6*	14 9	14 9	14 0*
Transvaal Silvers	43 6*	43 6*	45 0†	38 0*	40 0a	40 0*
Do. Options	21 6*	21 6*	20 6*	20 0*	20 0a	21 6†
Transvaal Lands	—	—	—	25 0†	—	—
Trans. G.M. Est.	10 0†	10 0†	11 0	10 9*	11 0*	10 6*
Union 5 per cent.	£97⅓*	£97½	£97	£95½	£77	£97
Victory Monarchs	45 0†	45 0†	45 0†	—	—	—
Van Ryn Deeps	84 0	83 6	83 9†	83 9	83 6*	84 0
Van Dyks	—	—	—	—	2 6†	—
West Rand Cons.	2 6*	2 6*	—	—	—	—
Western Rand Est.	2 6*	4 0†	3 9†	4 0†	4 0†	—
Witbank Colls.	—	42 6*	42 6*	42 6b	43 9†	43 9†
Witwatersrands	—	—	15 0†	—	13 0†	—
Wit. Deeps	8 6*	8 6*	8 6*	9 0†	9 0†	—
Wolhuters	3 0*	3 0*	3 0*	3 0*	3 0b	3 0*
West Springs	15 1½	14 9*	14 9*	15 6	15 3	15 0a
Do. Options	2 0*	2 0*	2 3	2 0*	2 0*	2 0
Zaaiplaats Tins	7 0	7 3*	7 6	7 6	7 3*	7 1*

*Buyers. †Sellers. aOdd lots bEx London.

The Modder B.

In dealing with the position of the Modder B. in our last issue, we allowed a hastily-written generalization to creep in, giving the impression that the original lay-out of the Modder B. was open to criticism. As a fact, we are satisfied that the lay-out of the mine was excellent of its kind and admirably adapted to the special conditions existing on the Far East Rand. The programme as originally planned did provide for all contingencies, except perhaps, the disappointing development values in the eastern section of the mine. That programme has only been modified to meet the many supervening factors, such as the War, shortage of compressed air power, curtailed working hours, etc.; and to ascribe the difficulties which the mine has had to contend against as being due to faulty lay-out is, we admit, neither fair nor accurate.

THE RHODESIAN GEOLOGICAL SURVEY.

Extracts from the Report of the Director, Mr. H. B. Maufe—The Diamond Beds.

Mr. H. B. Maufe, in his report as Director, Geological Survey, for 1919, states that field work was concentrated on systematic mapping, and was carried on in the Bubi, Gwelo, and Lomagundi districts. We extract the following from the earlier half of the report, and will deal with the remainder in a subsequent issue :

Bubi District.

In the Bubi district he shows that he continued the work done in 1918 in the Bumani, Mnyamana, and Ngwenya valleys, carrying the mapping northwards to the Queen's Mine-Lonely Mine road, and across the Bembesi River to within five miles of Inyati. The rocks underlying this area were found to be a continuation of those described in his " interim report on the geology of part of the Bembesi basin." Of the three belts of crystalline schists described therein, the western belt of greenstones, of which an important part consists of " pillow lavas " of epidiorite, was followed up to the neighbourhood of the Queen's Mine. In this belt are situated, besides the Queen's Mine, the Jumpers, Newtonfontein, Queen's West, Barberton, Star, Ettie, Comberton, Easter Queen, Claydon, and Polar Star mines.

The medium belt of acid igneous rocks was also followed up to the Lonely Mine road. Near the north-eastern margin of the belt at the Lonely Mine road drift through the Bembesi River is a broad band having the appearance of a conglomerate, somewhat similar to that of the " Eldorado conglomerate."

In this belt the gold reefs are almost entirely confined to its eastern margin near the eastern belt of greenstones; such are the Blobs, Game Cock, and Queen Ena claims. In the oxidised zone the country rock is soft, but somewhat treacherous, and water is usually found in some quantity at moderate depths.

The eastern group of greenstones, with its bodies of more or less schistose felsite, is the home of many gold quartz reefs. The Peach, Donove, and Camstick mines are on this belt, and in a north-westerly direction extending through Riversbank Farm are many prospects, some of which reached the producing stage. Gold-bearing reefs are also found in and near the banded ironstone outcrops, but the massive greenstone country to the east, which appears to be free or almost free of schistose felsite bodies, contains no prospects, even close to the granite margin.

Some work was also done south of the granite and east of the area mapped in 1918—that is, on Bembesi Valley Farm and the Fingo Location. The banded ironstone in one continuous and two or more discontinuous lines of outcrop was found on the prolongation of the strike of the Riversbank outcrops, and to the east of these a broad belt of massive epidiorite showing in places the well-developed " pillow " forms." Here also the quartz veins appear not to carry gold.

The mapping of the granite complex bears out the suggestion made last year that there were two periods of granite intrusion, one older and one almost certainly younger than the gold reefs. The younger granite is coarser grained, pinkish in colour, almost always porphyritic, and seldom with a banded or streaky structure. It builds the bold " castle kopjes " on Formona aod Robins farms, and may conveniently be known as the Formona granite. Its southern margin has been followed from the east across the northern part of Bembesi Valley Farm, northwards near the Bembesi River to the Morven Mine, thence almost north-north-east across the western part of Formona on to Robins Farm.

Around the Queen's Mine.

The older granite is somewhat fine-grained, grey in colour, more or less banded, and sometimes schistose. The Rhodesian Queen Mine and some of the neighbouring prospects lie in one of these fine-grained marginal modifications. No gold reefs have been found in the Formona granite, and it is very probable that it was intruded at a later date than the formation of the gold reefs. On the other hand, the kimberlite bodies containing diamonds on Robins Farm, which were briefly described in the annual report for 1914, are intruded into the Formona granite.

A belt of country some six miles wide lying north of the Queen's Mine-Lonely Mine road between the stretch of forest sandstone mapped by Major B. Lightfoot in 1914 and the Bembesi River—was mapped by Mr. Macgregor. The area is composed of greenstone and felsitic schists undisturbed by granite intrusions. Except in a small area in the east along the Bembesi River the rocks are almost entirely uncleaved, exposures are good, and dominance of lavas over unbedded volcanic bressias renders the area better suited for unravelling the nature of the gold belts than others more mineralised and metamorphosed.

The schists have a general north-north-east strike with a westerly dip varying between 60 degrees and 80 degrees, and map out in belts characterised by different composition and structure. . . . The only mine at present working in the area is the Queen's. This is in a quartz reef trending almost parallel to the strike of the enclosing lavas which dip steeply to the west. A quarter of a mile to the east they lie nearly horizontally, and beyond this point begin to dip to the east. It is probable, therefore, that the group of associated reefs at this spot owe their location to an inticlinal structure. Three miles north of this a broad belt of crushed rock, chiefly felsitic, carries some quartz blows and a number of gold reefs, including the old Excelsa and Stock's Luck mines.

The Durban Mine lies just outside the area to the north-west, and was visited on two occasions. It is in a quartz reef in a felspathic grit. Its fissure appears to be determined by a local incipient cleavage, and to be independent of the strike of the rocks. The reef of the Addie-Iris Mine, situated one and a half miles further to the north-west, is, on the other hand, independent of both the cleavage and the strike of the country rock.

Gwelo District.

The diamantiferous beds of Somabula Forest were examined by the late Mr. Zealley in 1914. He was unfortunately unable to obtain definite evidence of the age of the deposits. . . . The following is the amended table of sedimentary rocks in descending order:—(4) Recent white sand, 1 to 12 feet; (3) rubble bed with agates, fossil wood, etc., 3in. to 3ft. (discordance). Diamantiferous series: (2) Arkose group. Coarse felspathic sandstones and gravels up to 150ft. (slight discordance); (1) mudstone group. Mudstones, fine sandstones and gravels up to 60ft. (great discordance). Granite floor.

The discordance between (1) and (2) has the nature of a " washout," eroded during a period of almost continuous sedimentation. At Willoughby's the felspathic sand and associated gravels (2) overlie the more argillaceous deposits, (1) and fill channels cut in them and in the granite beneath. The discordance here is unmistakable. At other places rocks of the two types are interbedded without visible discordance. On account of the discordance the maximum thickness of both groups is never developed at the same spot.

The discordance between (1) and (3), though an inconspicuous feature in the field, is of very much greater moment, and undoubtedly represents a break of several million years. The rubble bed which rests upon the gravels of (2) with an extraordinarily uneven surface can only be distinguished from the underlying rocks by its composition. It contains, besides the pebbles from the underlying partly denuded gravels, unrolled agates, etc., undoubtedly derived from late Karroo basalts, and also silicified wood. The examination of many shafts sunk in the search of water or diamonds demonstrated that as the rubble is traced up the slopes of the hills, it approaches and finally reaches the surface, and is generally absent from the hilltops. Overlying the rubble is a bed from one to twelve feet thick of recent coarse white unbedded sand, which is thickest on the sides of the hills.

In spite of the enhanced price of diamonds, the value of the yield from the field continues to decrease. This is due to the fact that no new rich pockets have been struck during recent years. Good stones and valuable pockets are doubtless still to be found, but the greater part of the shallow ground, taken as a whole, is not sufficiently rich, since the diamonds are found only upon the floor, to make open workings profitable, nor is the rock when saturated with water sufficiently firm to be mined.

Lonely Reef.

Record results are reported for 1919 by the Lonely Reef Gold Mining Company, Ltd., of Rhodesia. Rather more ore was treated of a considerably higher grade—higher, indeed, than was theoretically desirable—while the gold premium brought, of course, additional grist to the mill and offset a rise in working costs. Including over £20,000 from the gold premium, the company's declared profit for last year is no less than £192,455, against only £91,300 for 1918. Some £21,600 has been appropriated for income tax and depreciation. It will be remembered that three dividends have already been paid, totalling 10s. per share, while a bonus of a further 5s. is to be distributed at the end of this month, making an aggregate of 15s. for 1919, against only 5s. for the previous year. There will be £58,129 to be carried forward, against £29,595 brought in. In its ten years' existence the company's dividend declarations now mount up to no less than 255 per cent., and the officials are evidently hopeful of a reasonably lengthy further career, although individual year's profits may vary a good deal. The ore reserves have been increased by 23,600 tons to nearly 200,000 tons, but their average value is about half a dwt. less at 23·54 dwts. per ton. Their aggregate worth is, however, a record for the company.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Better Feeling; Bank Exchange Reduced—Our Marvellous Industries—Prejudice Against South African Products Passed—South African Steel and Chemicals—Industries not for State—Iron, Steel and Machinery—Vereeniging New Prices—The Pipe Trade—Timber and Building Material—The Trend of Affairs.

There was a better feeling in town on Tuesday when it became known that the bank exchange rate between South Africa and London had been decreased from $8\frac{1}{2}$ to 7 per cent. for the buying and from $7\frac{1}{2}$ to 6 for the selling rate. This is not over-much, but quite sufficient to show that an earnest endeavour is at work to bring the exchange down and so assist the export of products from the coast ports, as well as trade in general. It is to everyone's advantage that our exports should not be curtailed, as the shipping people say that the homeward bound ships often go with poor cargoes on account of the exchange question—as, for example, the wool market at Port Elizabeth has now been closed for the first time in 35 years. People are hoping that the Government and banks are in friendly rivalry to reduce the exchange before the Government Bill is published. Everything assists to bring the country back to normal. Business is bad in Johannesburg throughout all trade circles. The primary reason is the closing and dismissal of men on the lower-grade unpayable mines. This is not surprising when the following evidence was publicly given:—"The mine overseer met the men and told them that unless there was an improvement they would have to shut. The position was explained, and it was expected that every man would do his best. Consequently, we put (so said a miner) our shoulders to the wheel and reduced a loss of £5,234 in March last to £2,843 in May, when the mine was given a fair chance."

INDUSTRIES: CHEERFUL AND OPTIMISTIC.

The South African Manufacturers' annual convention is being held in Capetown. In 1890 there were 550 factories in the Union, and there are now 5,918, employing about 50,000 whites and 84,000 coloured and natives. The goods manufactured in a year were valued at £61,000,000, consuming £31,000,000 raw material, of which 53 per cent. (£18,000,000) was South African. Food and drink to the amount of £23,000,000 had to be added, of which about £5,000,000 was exported to other countries. The time was passed, said the President, for the complaint that there was a prejudice against South African produce and manufactures. This could be removed and maintained by training their young workmen to produce as finished an article as the imported. The far-reaching effects of the manufacture of steel and iron in South Africa was emphasised; also, the chemical industry was making very rapid strides indeed. The aftermath of the War and the expensiveness of freight still afforded protection to South African industries. The President did not consider that the State, as a State, should undertake the running of industries. He said that had the manufacturing industries not adapted themselves so quickly to the local needs of the War period, we should have been fifty to sixty million pounds per annum the poorer. The South African industries to-day produce over 300 different classes of manufactured goods, and approximately 40 per cent. of their output is composed of manufactured articles of food and drink, the Union being very largely self-supporting so far as necessaries of life are concerned. The base metal industries continue to extend to a gratifying degree, and a brief summary discloses a most encouraging state of affairs, and shows possibilities of the resources of the country. In the manufacturing industries the signs of progress are particularly noticeable, as in almost every branch there has been rapid development. Sugar-growing was touched upon, and to-day the South African price is £41 per ton, as compared with £150 oversea. The coming crop it is estimated will yield about 170,000 tons. The leather tanning is ever progressing, and a London firm says that it is equal to Australian. Boot and shoe making is also much commended. The importance of the tobacco industry was very much eulogised, as the manufactured article shows an industry of £3,000,000 per annum.

EXPORT OF SOUTH AFRICAN-MADE GOODS.

South African factories have entered the export stage in some directions, their goods going in the majority of cases to those territories adjacent to the Union. But it is interesting to note that exports have reached the respectable total of nearly £5,000,000 annually, and include the following: Clothing, candles, cotton manufactures, articles of food and drink, furniture, hardware, iron and steel manufactures, leather and leather goods, machinery, manures, oil, soap, spirits, stationery, tobacco and vehicles, besides some others of smaller proportions.

NEW INDUSTRIES.

The following are among the new industries which have been established in the country during the period under review: Agricultural machinery, aluminium works, art marbles, argol, ammonia, asbesto-cement, bone char, briquettes or patent fuel, cornflour, concrete pipes, trough tanks, etc., crystalised fruits, cream of tartar, dextrine, dubbin, dry cells, gluten, household utensils, knitting wool, lacquer and gold size, lanoline, mica lamp chimneys, micanite sheets and washers, milk (condensed), mathematical instruments, motor bodies and motor sidecars, rubber manufactures, and tartaric acid.

IRON, STEEL AND MACHINERY.

The new advertised prices for Vereeniging mild steel are, from merchant to workshops, etc.: Light angles, 43s.; small-sized bars ot rounds and flats, 41s. 6d.; other sizes, 40s. Dunswart iron still remains at 33s. per 100lbs. There is a big shortage of bar iron in town, as merchants are not having their needs met by the Transvaal factories. In some cases orders placed three months ago are not yet completed. Steel plates are none too plentiful; prices are: 1-16, 72s. 6d., 75s.; $\frac{1}{8}$ scarce at 70s.; 3-16, 65s.; $\frac{1}{4}$, 60s.; $\frac{3}{8}$, 55s.; other thicknesses, 50s.

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

per 100lbs. A merchant just returned from Durban sold a consignment of steel plates arriving very readily; also iron and steel bars there are on the short side. A call was made on Messrs. Stewarts & Lloyds, who have removed to their new offices at the corner of Main and Mooi Streets, immediately on the tramline to Jeppes and Malvern. These offices cost over £5,000, and seem most convenient for all concerned, being adjacent to the firm's large wholesale stores of pipes, fittings and machinery. They find it equally convenient, as their old offices in the centre of the town, as a lot of their business is done by telephone; and another reason is that all the motor traffic for the Eastern Rand passes by. The information gained was that piping is anything but plentiful, particularly two-inch galvanised, which is so extensively used for new buildings in town and country. The costs of manufacturing pipes and fittings are still going up in their factories in Britain, because when the internal arrangements of the works are fairly all right, there is the difficulty of transport by rail and sea. There seemed no chance of prices coming down for pipes, engines and pumps, as there was a universal demand for the goods; therefore it often happened there was a delay in getting the things for their own branch establishment. A list was not available, as prices vary from day to day owing to the factory costs fluctuating. A merchant says that business is very quiet owing to this being the end of the financial year and stock-taking on the mines, etc. Another says there are no outstanding features to report, but business is very quiet and prices the same as last week.

TIMBER AND BUILDING MATERIALS.

Deals for immediate delivery are 2s. 4d. and 2s. 6d. per foot, according to quality and length, but they are a penny or twopence cheaper to arrive. Floorings, 11d.; ceilings, 7½d. and 8d.; roofing iron is a little cheaper at 1s. 6d. to 1s. 8d. per foot. There is a lull in the building trade as regards new contracts, but naturally the erections now in course of construction are being pushed forward as quickly as possible. However, there are a few building tenders out for business premises, and also a little Government work available. The price of bricks is a little easier at the kilns, but practically what is gained has to be paid extra for cartage. Bricks can now be had for immediate delivery, as compared with a three months' wait at Christmas-time. There is a great demand for expert bricklayers for the best class of buildings, but there are too many painters, as property owners will not do any work in furbishing until the conditions of the new Rent Bill are better understood. There are indications that the turpentine position will soon be relieved, for although it is nominally £10 per case of two 4's, yet it is understood it is about £8 to arrive from America in July. Linseed oil, raw 125s., and boiled 130s., two 4's; ditto substitute, 40s. to 42s. for a drum of 4 imperial gallons. This is a new quotation. White lead, 100s. per 100lbs., and 1s. 3d. lb. Electrical business good for both town and country for finishing off buildings and new work. The only feature is that orders are coming from Kimberley. Ceiling roses and counter-weights are still unobtainable.

COMMERCIAL EXCHANGE.

Business is very indifferent, as there is an entire absence of speculation, therefore merchants may come into their own again and not be disturbed by the outside speculators. There is a fairly optimistic spirit amongst merchants, notwithstanding the closing or restricting of a few mines. Had these things happened some years ago our Commercial Exchange would have been badly hit, but now we have become such a distributing centre the outlook is different, because what we lose in one quarter we make up in others. For example, we supply the Mashonaland Railway, Belgian Congo Railway, Katanga Copper Mines, German East, German West, Zanzibar, the alluvial diamond fields, and not the least in value are our wealthier farmers with agricultural machinery, fencing and irrigation pipes, windmills, etc. A great deal of trading also is done from our manufacturers through merchants, as it assists distribution, as well as financial affairs, very often. Again, there are just as many gold claims to open out as ever existed, and although delays will occur in obtaining the required machinery and plant, as well as a readjustment of the general conditions, therefore Johannesburg need not look back, as base metals and our wonderful coalfields are very big assets.

THE TREND OF AFFAIRS.

There is a little land speculation in the vicinty of the Wolhuter railway crossing, as the idea is that the Government will erect a new Jeppes Station there. A cartage agent states that business is very bad this month. He thinks it is something to do with the Economic League, as there is a slackening off in the auction marts, the furniture and other shops. There was a little rejoicing amongst bootmakers when it became known that the Judges declared that boots for the Kaffirs were incidental to gold mining, therefore were not barred like other things such as blankets, etc. It does not seem likely that the Native Labour people will let things drift, as it means extra money or certain privileges to the natives, who are quietly making themselves felt through their organisation. There are a number of enquiries for second-hand engines and boilers for the alluvial diamond fields, where it is usually found payable providing it is worked on a sufficiently compact and large scale. Rails are scarce, a parcel of big sizes being sold at £27½ per ton. All shop machine tools are scarce and dear.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:
KELLY, BURNIE & CO.
Box 5260. The "KELCO" People. Phone 4333.
Corner Polly and Albert Streets, Johannesburg.

GOLD, SILVER & COPPER ORES, SLAGS, ETC.

The Falcon Mines, Limited, are prepared to treat in any quantity all classes of Gold, Silver and Copper Ores; also Slags, Concentrates, etc.

For further particulars apply to General Manager, Falcon Mines, Limited, Umvuma, Rhodesia.

Why Ore is Where it is,

The old saying—that gold is where you find it—implied that theory and knowledge were of no value in the search for ore, and that its presence could be made known only by actualy finding it. The idea is still maintained by many, particularly by the practical mining man. However, it is being continually demonstrated by the economic geologist, or mining geologist, that not only is ore where you find it, but in considerable part its discovery depends on where and under what canditions search is made for it. As our previous conception of the percentage of copper or of iron necessary to constitute ores of those metals has changed, due to added knowledge of treatment of ores, so our conception of *why ore is where it is* has changed with increased geologic knowledge supplied by field and laboratory work. The old adage must now be discarded, and give rise to intelligently directed research, based on geologic principles, whether for increasing ore reserves in regions already being exploited or for mineral in new regions. The research work of our universities and of the Government, and endowed laboratories, and the field work of our geological surveys and independent geologists, has produced a host of valuable data which gives greater probability of reward for intelligently directed search for ore or oil based on an understanding of geology. The economic geologist who avails himself of all phases of this knowledge is enabled to decipher more readily why a particular ore is where it is.

Ore is where it is, not purely by chance, but by the result of definite processes which operated under certain conditions within the crust of the earth. The economic geologist is like a detective in that he must search for clues and diagnose these processes which gave rise to a certain deposit. For example: Is a certain ore deposit located in a particular place because of a pre-existing fissure, or a certain favourable rock formation, or its proximity to an igneous intrusion, or to a combination of all of them? Economic geology is not an exact science like mathematics, yet there are certain fundamental principles which underlie the formation of most ore deposits. No two ore deposits are alike in all respects, but with a knowledge of the principles and processes of ore deposition, one is in a better position to ferret out the problems of the particular ore body.

Such a knowledge of principles and processes is required to answer scientifically the question of *why ore is where it is.*

The answere involves, among other things, a knowledge of the different processes which result originally in the concentration of minerals or mineral products which may be valuable; of the source of the materials and the agents of transportation; of the shapes and distribution of pre-existing cavities and their control over ore bodies; of the shapes and characteristics of ore bodies formed by making their own cavities; the effect of the host rock; the action and results of secondary processes, and the tale that may be unfolded by the minerals that make up the deposit. The final careful answer to the question tells most that need be known of the deposit. The answer, in turn, often enables similar places where similar conditions exist, and where similar processes operated to be determined, and search for more ore to be directed accordingly. For example, should it be found that an ore body originated by solutions given off from a nearby intrusive, that fissures of a certain system acted as channelways for the solutions, and that where the fissures intersected certain beds of limestone, replacement ore bodies resulted, then, if the same congenial bed of limestone be formed, and fissures of the same age be recognised and projected to cut the bed, the intersection of the two may be a locus for ore. Exporation may then be directed to that place with the reasonable expectation of the search resulting in the finding of more ore. This is one phase of the work of the trained economic geologist.

While the above example applies to the search for more ore in districts already partly developed, the answers to *why ore is where it is,* gained from a number of places, may also be applied to undeveloped districts. It is a generally accepted fact that most ore deposits susceptible to relatively easy discovery have already been found. Most regions have now been at least superficially prospected. The incentive for prospecting on the part of the old-time prospector is not as great as it used to be. Much cerdit is due to him for bringing to light a large number of ore deposits, and his passing is much lamented. This, coupled with the fact that more attention is directed to the exploitation of large low-grade deposits, and that in the acquisition of new properties, investing capital now gives more weight than heretofore to the expected possibilities of prospects, requires for the discovery and development of more mineralised regions that there should be enlisted all the knowledge and experience gained by economic geologists. The old prospector was a self-trained man, and more often not trained at all, but the economic geologist has his own training gained from answers as to why ore is where it is. In addition, he has the advantage of the experience of the prospectors, and of other countless trained men who have contributed their knowledge to the science.

With the decreasing chances of discoveries by prospectors, and the consequent waning incentive for them to prospect, has not the economic geologist an opportunity to increase the world's mineral reserves by supplementing, or even supplanting, the work of the old-time prospector? His field may be not only to examine and report upon the prospects found by the prospector, but specifically to direct the prospector in his search for new mineral areas, and to guide and advise him about his discoveries.

The old saying, "Where ore is, there it is." may then fade into historic interest in the light of the application of the geologist's answers to *why ore is where it is.*

Latest Company Registrations.

The City Crushers, Ltd., 267 Commissioner Street, Johannesburg; capital £3,000.

Boschfontein Magaliesburg Tobacco Factory, Ltd., 4 Primrose Buildings, Fraser Street, Johannesburg; capital £15,000.

The African Vulcanising and Boot Co., Ltd., 37 and 38 Royal Chambers, Simmonds Street, Johannesburg; capital £2,000.

The Ladies' Outfitting Co., Ltd., 135a Market Street, Johannesburg; capital £4,500.

Salisbury Meat Market, Ltd., 15 South African Mutual Buildings, Harrison Street, Johannesburg; capital £1,000.

Belgravia Dairy and Creamery, Ltd., 395 Main Street, Belgravia, Johannesburg; capital £1,000.

Seal Mineral Water Co., Ltd., 12 Buxton Street, Doornfontein, Johannesburg; capital £3,000.

The South African Iron and Steel Corporation, Ltd., 1 7 Corner Estate Buildings, 203 Pretorius Street, Pretoria; capital £1,500,000.

Richmond Butchery, Ltd., 20 Merton Road, Richmond, Johannesburg; capital £300.

Emma Building and Trading Company, Ltd., 20 Robinson Buildings, Commissioner Street, Johannesburg; capital £6,000.

Boksburg Iron and Timber Co., Ltd., 124 Commissioner Street, Boksburg; capital £800.

The Witwatersrand Chamber of Reef Trade, Ltd., 32-33 Sacke's Buildings, Jonbert Street, Johannesburg; capital £100.

Pynol, Ltd., 11 London House, corner Main and Loveday Streets, Johannesburg; capital £250.

African Metallizers, Ltd., 13, 13a and 14 Norwich Union Buildings, Fox Street, Johannesburg; capital £1,500.

C. W. Bates & Co., Ltd., Back of Nos. 227 to 231 Pretorius Street, Pretoria; capital £20,000.

The Stag Brewery, Ltd., 11 London House, Loveday Street, Johannesburg; capital £50,000.

B. & R. Gears, Ltd., 18 Colonial Mutual Chambers, corner Fox and Loveday Streets, Johannesburg; capital £2,000.

Rietfontein Farms, Ltd., King Edward Street, Potchefstroom; capital £2,000.

Roedean School (South Africa), Roedean School, Parktown, Johannesburg; capital £100.

The Standard Properties of Africa, Ltd., Offices of Niemeyer & Marais, Church Square, Pretoria; capital £60,000.

Cumming Wilson, Ltd., 99 Main Road, Fordsburg, Johannesburg; capital £5,000.

Welverdiend Estates, Ltd., King Edward Street, Potchefstroom: £4,000.

Seligson & Clare, Ltd., 13, 13a and 14 Norwich Union Buildings, Fox Street, Johannesburg; capital £3,000.

F. T. Blane Mining Co., Ltd., 40 Steytler's Buildings, Loveday Street, Johannesburg; capital £20,000.

FOREIGN COMPANIES.

The B. F. Goodrich Rubber Co. (South Africa), Ltd., care of Norman H. Bransby, corner of Frederick and Rissik Streets, Johannesburg; capital £30,000.

Citizens' Amusements, Ltd., care of J. M. Goodman, Hulett's Buildings, corner of Kruis and President Streets, Johannesburg; capital £300,000.

Underberg (Natal) Oils, Ltd., care of Francis Thomas, 159-160 Stock Exchange Buildings, Johannesburg; capital £15,000.

African Silver, Ltd., care of Gustav Durholt, 152,-153 Exploration Buildings, Commissioner Street, Johannesburg; capital £20,000.

Huxley Diamonds, Ltd., care of Gustav Durholt, 152-153 Exploration Buildings, Commissioner Street; capital £100,000.

Meob Protectorate Diamonds, care of J. S. Richardson, 150-153 Stock Exchange Buildings, Marshall Square, Johannesburg; capital £50,000.

The Consolidated Diamond Mines of South-West Africa, Ltd., care of Anglo-American Corporation of South Africa, Ltd., Corner House, Commissioner Street, Johannesburg; capital £4,500,000.

Diamond Fields of Africa (D.F.A.) Exploring Co., Ltd., care of Tasman Lawrence Day, 74 Fox Street, Johannesburg; capital £100,000.

Natalite from Papua.

As a result of the removal of excise duty from alcohol, it is stated that a Sydney syndicate, which has secured the Australian manufacturing rights, will undertake the manufacture of Natalite in Papua. This useful motor spirit, which is being largely used in South Africa, contains about 50 per cent. of alcohol, and certain Papuan plants and trees have been found which yield a very good return of that compound. The initial output will be about 5,500,000 gallons per annum, to be increased by replanting to 18,000,000 gallons. The price will be below 2s. per gallon. When the industry has been established in Papua, an attempt will be made to form co-operative companies in the Commonwealth for growing sorghum, which yields a high percentage of alcohol, on a profit-sharing basis.

The Week's Meetings.

CROWN MINES.

At the annual meeting of the Crown Mines, held on June 16, the Chairman, Mr. S. Evans, said :—

The work accomplished last year is dealt with very fully in the Reports and Accounts which have been in your possession for some time.

You will observe that compared with 1918 there is an increase of 150,489 in the tons mined, of 32,678 in the number of fine ounces of gold recovered, and of £188,021 in the amount distributed in dividends. The working costs are up by £123,663, or 4d. per ton milled, whilst the yield per ton in dwts. shows a slight improvement. The working profit totalled £750,422 11s. 6d. or 7s. 8d. per ton milled, as compared with—

	Amount.			Per ton milled.
1918	£410,642	3	4	4s. 5d.
1917	673,965	16	7	6s. 5d.
1916	815,630	1	3	7s. 2d.

Of the working profit for last year, £286,308 19s. 1d., or 2s. 11d. per ton, was derived from the premium on the sale of our gold.

The gold premium renders it necessary to deal with the year's results somewhat differently to what I have been accustomed to do in the past. Until recently, the yield and the costs per ton were the controlling factors. Now, the price of gold per fine ounce in South African and British currencies has also become a matter of cardinal importance.

Our output last year was—

Gold : 639,303 fine ozs., equal at par value, £4.24773 per fine oz., to	£2,715,586	10	8
Net premium on sale of gold	286,308	19	1
Silver : 67,915 fine ozs., which were estimated to realise	18.807	10	8
Or an average of 66.4d. per fine oz., making the total revenue derived from the disposal of the year's output of gold and silver	3,020,703	0	5
To which has to be added—			
Adjustment on gold produced in previous years, but realised and credited to working revenue during 1919	20,682	4	3
Net revenue obtained from clean-up of old mill sites at Bonanza and Crown Reef	2,039	5	7
Amount received under Bewaarplaatsen Moneys Application Act, 1917	22,035	6	10
Freehold and sundry revenue	4,908	19	11
Forfeited dividends...	1,596	5	5
Sundry interest received	5,118	15	3
Bringing the total revenue from all sources up to	3.077,083	17	8
The expenditure for the year was—			
Working costs at the mine and general expenses at the Head and London Offices	2,241,781	6	10
Other disbursements—			
Debenture interest ...	27,158	13	4
Redemption of debentures	84,700	0	0
Premium on purchase of debentures	486	8	9
Annuity in respect of undermining rights	29,905	0	0
Capital expenditure...	90,895	12	10
Taxation	106,704	17	9
Contribution to war relief funds, donations, etc....	12,221	5	9
Depreciation of investments...	1,200	0	0
Realisation charges ...	40,316	6	11
Making the total disbursements	2,635,369	12	2
And leaving a balance of	441,714	5	6
Deducting dividends paid...	376,042	8	0
We have left	65,671	17	6
Adding the amount unappropriated at the end of 1918...	348,696	15	3
There is therefore carried forward to the present year ...	414,368	12	9
The figure in the printed report is ...	403,464	7	9
Leaving a difference of	10,904	5	0

Which is accounted for thus :—

At the time the Reports were compiled the exact amount to be received on account of the silver produced during the year was not known. We estimated the probable receipts from that source, and it now appears that that estimate was too low by the amount mentioned, £10,904 5s., which has been placed to the credit of the gold realisation suspense account.

As you will gather from the Directors' Report, of the balance brought forward, £135,376 14s. 9d. is in cash and easily realisable investments and the remainder in stores, sundry debtors and shares and interests in co-operative and other concerns.

As I have stated, the realisation charges figure at £40,316 6s. 11d., or

1s. 1.36d. per ounce of bullion,
1s. 1.87d. per standard ounce, and
1s. 3.14d. per fine ounce.

This item includes the expenses incurred after the delivery of the bullion to the banks in Johannesburg up to the time it is handed over as refined bars to the Bank of England. It also includes the 1½d. per standard ounce payable to the Bank of England, but it is exclusive of the disbursements connected with the sale of the refined gold by Messrs. N. M. Rothschild and Sons.

The premium on gold figures in our accounts at £286,308 19s. 1d. When the Report was prepared the actual results of the sale of some of our gold produced last year had not come to hand. We now find that the premium was under-estimated by £14,601, which brings the net premium for the year up to £300,910. This amount of £14,601 has also been placed to the credit of our gold realisation suspense account, which now stands at £40,400 6s. 11d.

It will enable shareholders to appreciate the changes which have resulted from the war if we compare certain essential features of last year's operations with those of 1914 :—

	1914.	1919.
Average number of men working :		
Europeans	1,576	1,689
Natives	11,523	12,447
Footage developed and charged to working costs	30,747	35,999
Fathoms broken ...	112,417	98,811
Tons mined	2,558,668	2,204,940
Yield of gold in fine ozs.	707,957	639,303
Per ton mined, dwts.	5.534	5,799
Per fathom broken, dwts.	125.95	129.399
Working expenses ...	£1,784,059	2,241,781
Working expenses, exclusive of estimated expenditure on development ...	£1,681,806	2,044,153
	s. d.	s. d.
Per ton mined	13. 1.8d.	18s. 6.5d.
Per fathom broken	299s. 2.5d.	413s. 9.0d.
Per fine ounce ...	47s. 6.1d.	63s. 11.4d.

It will be noted that the grade was slightly better last year, and that there was an increase in the amount of development done. The working costs show an increase of £362,347, after deducting the expense of development, whilst there is a falling off in the quantity of ore mined of 353,728 tons. The unsatisfactory results last year, compared with 1914, are due to two main causes : (1) increased expenditure under several heads, and (2) decreased efficiency. The average yearly earnings of the Europeans working was last year £390 16s. 10d. as against £296 11s. 1d. in 1914. There was no material change in the earnings of the natives employed. The native labour supply was better than in some previous years, but at no time was it sufficient to enable us to make full use of our plants. Stores cost last year £732,709, or 7s. 6.4d. per ton milled and 148s. 3.7d. per fathom broken, as compared with £555,628, or 4s. 10.3d. per ton milled, and 98s. 10.2d. per fathom broken in 1914. Other costs had increased from 2s. 10.5d. per ton milled or 58s. 6.2d. per fathom broken in 1914 to 4s. 2.3d. per ton milled, or 82s. 7.0d. per fathom broken last year. On a percentage basis, the increases last year as compared with 1914, were :—

	Per cent.
White wages :—	
Total	40.7
Per ton mined...	63.5
Per fathom broken	60.1
Per European employed...	31.8
Stores :—	
Total...	31.9
Per ton mined	53.1
Per fathom broken	50.0
Other costs :—	
Total	24.0
Per ton mined	43.7
Per fathom broken	41.1

The results obtained this year up to the end of last month compare with those of the corresponding period in previous years as follows :—

	Tons milled.	Yield fine oz.
1920	919,000	277,000
1919	746,000	249,000
1918	812,000	258,000
1917	903,000	278,000
1916	932,000	298,000
1915	1,022,000	310,000
1914	902,000	290,000
1913	954.000	341,000

Revenue including premium. £	Working costs. £	Working profit. £
1,390,000	1,047.000	343,000
1,048,000	922.000	126,000
1,072.000	884,000	188,000
1.158,000	857,000	301,000
1,238,000	894,000	344.000
1,302.000	802,000	500,000
1,218,000	695,000	523,000
1,436.000	813.000	623,000

It will be observed that the revenue, including premium, is greater this year than in any of the previous periods excepting 1913. The net premium on the gold produced during the past five months is estimated to total £291,801, equal to 21s. 1.1d. per fine ounce, or about 7s. less than the increase in costs per fine ounce since 1913. The total profit, including premium, shows a decrease of 45 per cent. compared with 1913, although it is better than that of any previous year since 1916. The working costs are now considerably higher than they have ever been before, due almost entirely to increases under the headings White Wages, Stores, and Other Costs. Head Office and London expenses are less this year than in previous years, whilst there is an increase of about 7 per cent. in the expenditure on coloured wages as compared with 1913. This year white wages amounted to £341,686. This includes £13.250, payment on account of 1919 as the result of a retrospective increase effected in February last. The actual expenditure on white wages for work done this year was therefore £328,435, which shows an increase of 69.1 per cent. on the 1915 figure, when 103,000 tons more were milled. The average monthly earnings of our European workers have gone up from £24 6s. 10d. per month to £40 1s. 7d., an increase of 64.6 per cent. As compared with the first five months of 1915, the total cost of stores shows an increase this year of 33.4 per cent. Other costs are up 36 per cent. as compared with 1915. Per fine ounce of gold produced, expenditure on white wages, stores, and other costs has increased as follows, taking 1913 as 100.

	White wages.	Stores.	Other costs.
1913...	100	190	100
1914	102.1	96.6	100.8
1915	99.8	106.8	117.8
1916	114.6	136.6	121.1
1917	129.0	130.1	130.5
1918	147.5	140.1	143.1
1919	173.1	160.3	147.0
1920	189.2	160.3	167.4

It should be borne in mind that a part of the above increases is due to the fact that the yield per ton mined this year was less than in 1913. Had the ore treated this year yielded exactly the same grade as in 1913 the figures this year would have been, white wages 172.9, stores 140.4, other costs 146.7.

By the passing of the Miners' Phthisis Act, which came into operation on the 1st of August last, the Union Parliament placed a substantial additional burden on mining companies at a time when they were entitled to look for relief. The entire compensation provided under the new Act is levied solely on the employer, and is on an unprecedently lavish scale. The Government actuary estimates that the cost under this Act to the mining companies for the first five years will be £5,128,600 as compared with an estimated cost under the prior Act of £1,305,000, of which the employees would have contributed one-third. The assessment against the Crown Mines for the six months, August 1st, 1919 to January 31st, 1920, amounted to £32,591, or 7.609d. per ton milled, as against £11,868 for the previous six month under the old Act. Nor does this constitute the whole charge against the company on account of miners' phthisis. The Crown Mines bears its share of the cost of the Chamber of Mines Dust Sampling Department, which is doing most useful work in improving underground conditions; and in addition the company itself is spending a large amount monthly on dust allaying devices.

The consulting engineer and general manager deal fully with the development accomplished in the course of the year under review. There are, however, a few points regarding which I may usefully supplement the information which they give. The 19th level main haulage has been started with electric storage locomotives and ore is being drawn from stopes which have been recently opened up between the 16th and 19th levels in the eastern section. A considerable portion of the track in the western section has been laid, and we hope shortly to be stoping the rich ore exposed in the lower levels in that section. The sinking of shaft No. 15 has been finished, and the crosscut to connect it with the 9th level south is being pushed ahead. The sinking of shaft No. 5a is also now completed; it is being equipped with rail guides, and we expect to start development from it in about three months time. The next point to which I propose to direct your attention is that of the position of our ore reserves, which I think under the circumstances I am justified in describing as distinctly encouraging. As you will note, the consulting engineer reports that considerable progress was made during the year with the development in new areas, and that the reef disclosures on the whole were satisfactory. The main reef leader was consistently payable and of good value; the south reef was more patchy with, however, encouraging values on the lower levels west of No. 7 shaft. At the end of last year we had in reserve 8,451,334 tons of ore estimated to contain 6.31 dwts. of gold over a stoping width of 63.2 inches, distributed thus:—

Above the 16th level, 6,625,652 tons; width, 64.0 inches; value dwts., 6.04; below the 16th level, 1,825.682 tons; width 60.7 inches; value dwts., 7.26.

I am sure shareholders will agree that these figures augur well for the future. There was a slight fall last year in the tonnage, and in the grade of the ore exposed in the eastern section, but on the other hand there was an all-round improvement in the exposures in the western section, as will be seen from the following comparison:—

Ore developed in the western section on December 31st: Tonnage, 1918. 4.472,008; 1919, 4,659,534; width, inches, 1918, 61.3; 1919, 61.1; value, dwts., 1918, 6.10; 1919, 6.28.

The most reassuring feature of last year's development operations is the high values obtained in our lower levels in the western section. The exposures in this area this year have also been excellent. The drive sampling on payable ore in both sections in the first four months of this year has given the following results:—

South Reef, 910 feet; inch dwts., 409; Main Reef Leader, 2,160 feet; inch dwts., 478, which must be considered promising, particularly when it is remembered that some of the richest ground is in the deepest areas. The general manager in his report gives the results of the development up to the end of the year on the 19th level crosscut south of the South Rand Dyke. The figures show a total of 580 feet on the main reef leader averaging 497 inch dwts., and 330 feet on the south reef, averaging 255 inch dwts. The main reef leader is consistently payable, but only portions of the south reef can be worked at a profit under existing conditions. The development accomplished during the first four months of this year in this area is also opening up good ground, as the following figures indicate: 460 feet of main reef leader averaging 694 inch dwts. and 380 feet of south reef averaging 265 inch dwts. I may explain that 160 feet on the south reef east averages 344 inch dwts., whilst 230 feet on the main reef leader drive east averages 1,054 inch dwts., or 17.5 dwts. over a stoping width of 60 inches, which compares favourably with the best ground we have had in the past. Generally, I consider that the position of our ore reserve and the promising character of recent development justify shareholders in taking a hopeful view of our future prospects. Had the working costs remained the same as they were in 1908 when the formation of the Crown Mines was under consideration we should at present be earning larger profits, exclusive of the gold premium, than those who were responsible for the amalgamation ever anticipated. Shareholders who have studied Mr. Webber's report of January 1st, 1909, know that he did not count on the deeper ground which we are now developing disclosing such good values.

As in previous years, we have continued to do our utmost to preserve the health of our workers, European and native. The mortality from disease amongst our white employees last year was 7.6 per thousand per annum as compared with 13.1 in 1918. The native death rate from disease was 14.12 per thousand per annum, being a slight improvement on the figure for 1918, which was 16.3 per thousand. Of the 180 deaths from disease last year, 82, or 6.43 per thousand were due to epidemic influenza.

The mortality last year from accident was 0.5 per thousand per annum among our white employees, as compared with 3.4 per thousand in 1918 and 4.6 in 1917. The accident death rate among our native employees was 2.90 per thousand per annum last year, as against 2.45 in 1918 and 2.30 in 1917.

In conclusion, I desire to place on record the Board's appreciation of the able and loyal service rendered to the company by the consulting engineer, the general manager and managers and staff at the mine and at the head office during the year.

I now beg to move that the Directors' Report, Balance Sheet, and Accounts for the year ended 31st December, 1919, laid before the meeting, be received and adopted.

ROBERTS VICTOR DIAMONDS.

At the annual meeting of shareholders of Roberts Victor Diamonds, Ltd., Mr. J. Emrys Evans, C.M.G., in the course of his report, drew attention to the satisfactory completion of the work upon which they had been engaged, viz., the removal and reconstruction of the entire washing plant. This work was finished in January last, and, although it took rather longer than was estimated at the outset, owing chiefly to labour difficulties, a first-class job had been effected. Tailings washing was begun about the middle of January, and had since proceeded uninterruptedly. The total outlay occasioned in removal and re-erection was £7,519 12s. 5d., and, although the plant had only been in commission again for approximately four months, it had already more than repaid the cost entailed.

Since washing was started, the following results had been obtained:

Month.	Loads washed.	Diamonds recvrd.
January (10 days only)	7,063	502½
February	18,189	1,703¼
March	20,914	1,937¼
April	22,375	2,387¾
May	22,311	2,125¾

	Rate per 100 loads.	Sold for.	Profit.
January (10 days only)	7.11	£1,002	£498
February . .	9.36	*10,012	*6,767
March . . .	9.26		
April	10.67	4.650	2,508
May	9.51	Unsold.	

*February-March.

The rate of washing was naturally on the slow side to begin with, but as the newly-erected plant became better conditioned the number of loads treated improved, and would, it was expected, further increase. So far only four out of the six pans available had been in use. The remaining two pans, however, were ready erected and, by augmenting the elevating plant, it was proposed to put these into commission as well. This should increase the present output by about 50 per cent and reduce working costs. It was estimated that the tailing heaps, which were extensive, contained approximately 750.000 loads of ground suitable for treatment, so that these operations should result in substantial profits being earned over a lengthy period.

The yield from the tailings showed a very good return on the number of loads washed and this was being well maintained. Although portions of the ground might vary in this respect, the results so far obtained offered a fair indication of the future yield which might be expected. At any rate, selective washing was not being carried out, as the ground was treated as it became available for the machines.

The Accounts.

The accounts did not fully reflect the now improved financial position of the company, having been drawn up previous to present operations. The loan account of £917 0s. 3d. as shown had been paid off and they had a sum of approximately £4,500 in hand at date, which was being steadily added to from month to month. The May output of diamonds, totalling 2125¾ carats, which were of good average quality, was not included in this figure, but was on hand and would be sold at a favourable opportunity.

Although the local diamond market had recently experienced a slight setback in price owing to the difficulty of financing purchases in South Africa, the oversea demand was likely to be maintained at good prices far in advance of pre-war values. In any event, the low cost of production attaching to present operations, averaging as it did under 2s. per load treated, presented a fair argument in favour of the maintenance of satisfactory profits.

A definite scheme to restart the mine proper by means of underground workings at depth had now been formulated and arrangements were being made to finance the reopening of the mine. This method of working necessitated the sinking of shafts outside the actual area of the mine. Connecting drives would then have to be cut and an extensive programme of underground development undertaken in order to provide blue ground for the washing plant. It was estimated that a sum of about £120,000 will be required for this work.

The preliminary work for the sinking of the two shafts has been commenced.

The adoption of the report and accounts was passed without discussion, the retiring directors and auditors being re-elected.

T.C.L. & EXPLORATION CO.

The annual meeting of the Transvaal Consolidated Land and Exploration Company, Limited, was held on June 16, at Corner House, Mr. J. R. Leisk presiding.

The Chairman, in moving the adoption of the reports and accounts, said that 1919 had been one of the most satisfactory years in the history of the company. The sales of farm property, aggregating over 336.000 acres, had exceeded by no less than 193,120 acres the sales of 1913, which was their previous high-water mark. The rate of disposal for the expired portion of the current year, namely, 120,000 acres, or an average of 24,000 acres per month, showed that the demand continued on an unusually high level. Their transactions in farm property contributed to the year's income a sum of over £36,000. With town properties a record had also been established, there being a profit under this head of nearly £38,000, as against £19,000 the previous year. Since the beginning of January last they had sold township areas to the value of £18,235. The total revenue for the year was £146,294, as compared with £153,267 in 1918. Expenditure was £21,855, compared with £18,865. The speaker went on to deal in detail with the farming and mining interests of the company.

The report and accounts were adopted

The Year with the General Mining Subsidiaries.

The results of the producing mines of the General Mining and Finance group for last year are now available. At Aurora West the working loss was £29,238, and the addition of the gold premium and over-estimated realisation charges, totalling £21,706, was insufficient to cover this deficiency. The possibility of more selective mining, with a consequent considerable curtailment of operations, is being investigated, as an alternative to closing down the mine until more normal conditions prevail. Thanks to the premium on gold obtaining from July 25 last, what would otherwise have been a working loss at the New Goch was converted into a profit of £8,399. Even with the addition of the premium on gold obtained, mining operations at Roodepoort United resulted in a loss of £2,118. The directors point out that the high costs in respect of stores, labour, miners' phthisis assessments, and insufficient stope faces were even more accentuated during the year under review. The year's working at West Rand Consolidated resulted in a loss from mining operations of £1,921; but, as a result almost entirely of the influence of the gold premium, this was converted into a profit of £61,103. The mine suffered throughout the year from a serious shortage of native labour, which restricted the tonnage mined to a quantity much below the normal capacity of the crushing plant. A brighter picture, however, is given by the old-established and prosperous Meyer and Charlton, which made a working profit of £264,520, which, with the addition of the gold premium, etc., was converted into a gross profit of £332,367—a fresh record for the company. Two dividends, aggregating 120 per cent., were declared, and the dividends and bonuses paid by the company now total £2,575,309, or 1,815 per cent. on the capital (now £200,000) issued from time to time. A satisfactory feature of mining operations at this time last year is a large increase in the quantity of ore reclaimed from old workings, which constituted 27·3 per cent. of the total ore mined, as compared with 13·9 per cent. in 1918. Cinderella Consolidated and Rand Collieries remain closed down pending the provision of the necessary funds for restarting operations. Sacke Estates has continued to husband its cash resources; while, regarding New Steyn mining area, the directors point out this is still dormant, and, under working conditions now prevailing, could only be satisfactorily dealt with by selling to one of the neighbouring producing companies.

* * * *

Mineral Resources of the Empire.

A new volume, dealing with tungsten ores, in the series of monographs on the mineral resources of the Empire which are being published under the auspices of the Mineral Resources Committee of the Imperial Institute, has just been issued by Mr. John Murray. Previous volumes in this series have dealt with zinc ores, manganese ores and tin ores. The latest volume has been prepared by Mr. R. H. Rastall, M.A., F.G.S., University Lecturer in Economic Geology, Cambridge, and Mr. W. H. Wilcockson, M.A., F.G.S., Lecturer in Geology in the University of Sheffield. Before the War the smelting of tungsten ores (wolfram and scheelite) was mainly in German hands, and although about two-fifths of the total world's production of the ore was supplied by the British Empire, chiefly Burma, the greater part of it was sent to Germany for treatment. Tungsten is used principally for the manufacture of high speed steel for cutting tools, but the situation arising through the stoppage of German supplies was met by the erection in this country of several factories where tungsten metal and the alloy, ferro-tungsten, were made on a large scale for the needs of the British and Allied armaments. To meet the enormous demand for the metal, the production of the ore increased nearly everywhere. In 1917 Burma nearly trebled its pre-War output, the Malay States produced nearly four times as much as in 1913, the United States did the same, and the South American countries doubled or trebled their output, whilst China, which produced no tungsten ore at all prior to 1914, had an output of over 4,000 tons in 1918. As an indication of the importance of the metal, it may be mentioned that 20,000 tons of high speed steel, containing about 15 per cent. of tungsten, were produced in this country in 1918, whilst the value of such steel produced in the Empire in that year is estimated at £7,500,000 at War prices. Tungsten is also employed on a large scale for the filament of electric glow lamps, for which purpose it has entirely replaced tantalum.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

VOL. XXIX., PART II. JUNE 26, 1920. [No. 1500.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 395

Topics of the Week:

How the Crisis is Being Met 397

The Diamond Market: Its Position and Outlook 399

The Half-Year's Dividends in Detail 400

Development Values on the Far East Rand 401

The Mines and the Rand Water Board Vaal River Scheme 402

The Mines and the Banks 403

Pilgrims Rest Mines and Claimholders' Association ... 405

Emerald Diamonds: Successful Flotation 407

The Week in the Sharemarket 409

Correspondence and Discussion: "Geology of the Oil Fields of Madagascar"; "British Income Tax"; "West Rand Geology"; "American vs. British Locomotives"; "South African Institution of Engineers" 411

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 413

Mines and Minerals of S.-W. Protectorate 416

Company Meetings: City Deep; Robinson; Rose Deep; Durban Roodepoort Deep; Geldenhuis Deep; Bantjes Consolidated; Central Mining; Anglo-French; Navigation Coal; Leeuwpoort Tin 420

The Mineral Wealth of the British Empire 426

Notes and News.

Welgedacht Stoppage.

Owing to the continuous loss in working the coal section and acting on the advice of their consulting engineer, the directors of the Welgedacht Exploration Co., Ltd., have closed the colliery, and operations ceased on April 30. The accounts are being prepared to that date, and will be issued with the directors' report in due course.

* * * *

The Select Committee on Specie Export.

The Report of the Select Committee on the embargo on the export of specie was brought up by Mr. Burton in the Assembly during the week, and it was decided to have it printed, and considered next Monday. Col. Creswell inquired when the Report would be in the hands of members. In all probability at the end of the week, answered the Minister, who intimated that there was a Bill attached to the Report. In further reply to Col. Creswell, Mr. Burton stated that it was for the House to decide whether they should discuss the Report on the second reading of the Bill, though his own view was that that would be the most convenient course to pursue.

* * * *

The S.A. Engineers' Electrical and Allied Trades Directory.

What is likely to prove an indispensable work of reference to engineering firms and all doing business with the mines, railways, municipalities and public departments in this country is issued this week under the above title. The work, which runs to over 540 pages, does for South Africa what such directories as "Rylands" do for Great Britain, but with the addition of many valuable features. It would be impossible in this short preliminary notice to do justice to all the features of the book, which is divided into sections clearly indexed and segregated. In view of the enormous amount of painstaking work entailed in its compilation, and the present high cost of paper and printing, the directory is priced at the low figure of 30s. per copy, and orders may be sent direct to the office of this paper, where the book is open to inspection. Only a limited number of copies of the first edition has been printed, so that orders should be sent in promptly to prevent disappointment.

* * * *

The Miners' Phthisis Act.

The cost of compensation under the new Miners' Phthisis Act is at the rate of £1,200,000 per annum—nearly four times the cost to the mines of the prior law, says the latest report of the Chamber of Mines. A Select Committee has been appointed by the House of Assembly to consider the working of the Act, and evidence was given before the Select Committee on behalf of the Chamber by the Actuary and Labour Adviser, Drs. Baumann, Mavrogordato and Orenstein and Mr. Barry, of the Rand Mutual Assurance Co., Ltd. That evidence was chiefly directed to pointing out the immense cost to the industry of the 1919 Act—a cost far greater than had been anticipated by last year's Select Committee or by Parliament—the impracticable nature of the so-called ante-primary stage and the injustice of levying a large part of the contribution on the basis of normal income tax. Messrs. Whitehouse and Van Eyssen also gave evidence on behalf of the Association of Mine Managers.

* * * *

Northern Transvaal Lands Co., Ltd.

This company is to be congratulated on having weathered the storms of 1919, and on being able to declare a dividend of 1s. 3d. per share out of a surplus of £15,479. This will absorb £11,051, and leave £4,427 to credit. The company sold 16 farms, the financial result from only 14 of which is included in these accounts. The amount realised for the sale of the 14 farms was £23,813. This leaves the company with a land holding of 179,213 acres, mineral rights over 107,513 acres, and three-fourths mineral right over 5,148 acres. Springbok Agricultural Estate, Ltd., in which Northern Transvaal Lands is interested, is being liquidated, and the company has received for its share £2,213, and expects to get £1,200 more. Since the books closed investments have been realised to the amount of £6,785, and the company's cash resources in London now consist of £7,400 and Treasury Bills £10,000.

Banks vs. Mines.

In another part of this issue we print an interesting contributed article on the vexed question of the bank charges to the mines, wherein is pointed out the bewildering paradox that several of our bank directors are directors of gold mining companies as well. In justice to these gentlemen it should be pointed out that the practical running of the banks is left to technical heads, to the general managers of the several institutions who have spent their lives in the business and to whose expert knowledge and experience in banking matters the directors invariably bow. The position is somewhat parallel to the practice of boards of directors of mining companies leaving the running of the mine to their technical advisers—a practice that is too often honoured in the breach than in the observance—and the position of the general manager of a bank is thus not unlike that of consulting engineer of a mine. Bank directors, it need hardly be added, are not chosen because of any knowledge of banking but because they are well-known men of outstanding integrity whose names are a guarantee of the general financial soundness of the bank. In view of this fact, it is possible to understand the paradox of a gold mining company director differing from the practice and policy of the banks even though himself allied with the purely ornamental and advisory side of banking known as the directorate.

* * * *

Nathan's "Transvaal Gold Law."

The third edition is now ready of this invaluable work by Manfred Nathan, K.C., LL.D. This has become a standard work, as the extent of its sale proves. It is necessary to everyone who is in any way concerned with the law on the subject, or with activities in gold or base metal mining, or with trading on mining ground, as well as with the rights of local authorities, coloured persons and natives, etc. The third edition contains new and important features in addition to the original Gold Act of 1908, among which are: The Trading on Mining Ground Act, 1910; the Amending Act of 1913; the Bewaarplaatsen Act of 1917; the Mining Leases Act of 1918; and Regulations. All decided cases have been brought up-to-date, with further explanatory notes. Changes in the law have been clearly indicated, with special reference to repealed portions of the original law. There is also a glossary of technical terms used in the law. Special attention is directed to the fact that it is ten years since the last edition appeared, and that this has been out of print for several years. Only a limited edition has been printed (owing to the greatly increased cost of printing). Copies are obtainable from Messrs. Hortors, Ltd., price 30s.

* * * *

Some Facts About Gold.

Some interesting facts are mentioned by Messrs. Samuel Montagu & Co., in their weekly bullion market report. They say: "A Bill, styled the McFadden Bill, is being formulated in Washington, with the object of assisting gold production in the United States, where it has languished in recent years. In 1915 the output was $101,035,700, in 1919 $58,500,000, and only $50,000,000 is anticipated during the current year. On the other hand, in 1919 the industrial consumption was $80,377,800. The Bill proposes to levy a tax of 50 per cent. per pennyweight of fine gold on all gold manufactured, used, or sold otherwise than for coinage. From the produce of this tax it is proposed to pay a premium of $10 per fine ounce to the producer of new gold for a period of five years, after which the premium is to be readjusted in accordance with the commodity price index number of the fifth year, compared with the average commodity price index number of the preceding four years; afterwards readjustment to be made annually. Considering that the mint price of gold is $20·6718 per fine ounce, an additional $10 is a very handsome bonus to the mining industry. It is stated in the Press that some boys 'who had never seen sovereigns before' gave away some which a terrier unearthed near Dublin. As the younger generation seems likely to grow up in similar ignorance, it has been suggested that specimens should form a feature in local museums so as to prevent similar errors of judgment in future."

Leave-taking of Popular Engineer.

The Rand can ill afford to lose engineers of the calibre of Mr. A. E. du Pasquier, who leaves in a few days for England. Mr. du Pasquier has for several years as general manager controlled the destinies of the British Westinghouse Company in this country, and in that capacity has won the respect and esteem of the engineers, professional and commercial, with whom he has come in contact. Professionally he has held a high place in the ranks of electrical engineers in South Africa, and his election to the highest public office in the gift of his colleagues, viz., the Presidentship of the S.A. Institute of Electrical Engineers, speaks volumes for the esteem in which they held him. Need we say that his year of office was one of the most successful in the history of this young and virile body, and that the public meetings and functions over which Mr. du Pasquier was called upon to preside were among the most successful of their kind ever held on the Rand? The last annual dinner of the Institute—honoured by the presence of H.E. the Governor-General—was a notable case in point. In the sterner world of business, British industry has seldom been better served on the Rand than in the person of Mr. du Pasquier. He was an uncompromising opponent of unfair trade methods, and leaves behind him an enviable record for British probity, courage and fairplay. To the many glowing tributes that have been paid him at public and private farewell gatherings of engineers of late, we add these few words of sincere appreciation.

* * * *

The City and Suburban Deal.

Extraordinary meetings of the City Deep and City and Suburban Gold Mining Companies are formally called to consider the agreement for the absorption as from 1st May of the latter's mine, of which agreement a preliminary official announcement appeared in a recent issue. The following is an extract from the City Deep circular:

> As you may be aware, the City and Suburban mine, which adjoins your property, is nearing the end of its profit-earning capacity as a separate mining proposition. At the same time there are still considerable ore bodies in the mine which, owing to convenience of attack, can be worked at a profit by the City Deep, Ltd. A conservative estimate of the value to the City Deep, Ltd., of the mining assets of the City and Suburban show that these assets would be worth 45,000 shares of this company, to rank for dividend after the 30th June, 1920. The consulting engineer has carefully considered the position from a mining and financial point of view, and is of the opinion, in which your directors concur, that the acquisition of the property for the consideration aforesaid will be to the advantage of this company. The proposition is therefore recommended for your acceptance.

The Directors of the City and Suburban Company observe:—

> There are undoubtedly in the mine considerable quantities of ore, which given normal conditions could be treated at a profit, but the difficulties attendant upon increasing the output of richer ore, and the unsettled conditions generally, militate against the adoption of that policy. The advantages of disposing of the property to one of the neighbouring companies were recognised, and it was decided that in the event of a better offer being submitted, it should be seriously considered. An exhaustive report from the consulting engineer revealed the fact that in view of rising costs and the reduction in the price of gold the future of the company as an independent unit held out no hope of profitable returns. On receipt of a further and better offer from the City Deep, your Board, after consultation with the local Board at Johannesburg, and the technical advisers of the company, decided to resume negotiations, and a provisional arrangement for the sale of the property and plant was arrived at, as set forth in the agreement now submitted for your consideration. The only alternative to the sale of the property to the City Deep, namely, the closing down of the mine and the sale of the plant at break-up values, received full consideration, but the fall in the gold premium by forcing other mines to close down will almost inevitably glut the market for second-hand mining plant and material. Taking all the circumstances into consideration, the uncertainty in regard to the duration of the gold premium, the heavy expenditure on shaft maintenance and possibility of further earth tremors impeding operations, your directors are of opinion that the sale of the property is in the best interests of shareholders, and strongly recommends its acceptance.

* * * *

The Year with the T.G.M.E.

The report on the operations of the Transvaal Gold Mining Estates for the year ended 31st March, 1920, shows a profit of £55,318, as compared with £34,813 for the previous year. In the course of his report, the consulting engineer, Mr. E. H. Clifford, writes: "The profit is considerably greater, chiefly on account of the higher price at which the gold was realised, but apart from this there was some improvement resulting from the greater tonnage and a decline in the working costs per ton. The unsatisfactory feature, as you will observe, is the continued fall in the yield of gold per ton. The Central Mines are entirely responsible for this fall, and the yield has now reached such a figure that it is with difficulty that the revenue can be made to balance expenditure, notwithstanding the gold premium. Unfortunately there are no grounds for anticipating any improvement in the yield, at least for the present, as very extensive prospecting operations in the Central Mines area have disclosed nothing but low-grade ore; the chief hope for the immediate future, therefore, lies in the reduction in operating costs. It is hardly necessary to point out that the high level of working costs now ruling is due, for the most part, to causes over which we have no control, and practically every item of expenditure has been affected. The ore reserves show a decline in value of 0·6 dwt. per ton, but a very considerable increase in amount. The Ponieskrantz mine and Vaalhoek have contributed the greater part of this increase. The position of the two outside mines, Elandsdrift and Vaalhoek, is much more satisfactory. The former maintains its relatively small output of high-grade ore, considerably higher grade in fact than during the previous year, and a very important part of the gross profits is derived from this mine. Vaalhoek has fully justified the hopes that were expressed about it in last year's report. The ore reserves now amount to 87,262 tons of a value of 8·7 dwts. per ton, and this figure is being added to every month. If the improvement continues during a further twelve months, proposals will be submitted to you for working the mine on a larger scale than is possible with the present plant. Attention is directed to the remarks concerning prospecting in the general manager's report. You will note that although £17,082 were spent under this heading, the results were unsatisfactory. Considerable quantities of ore were discovered, but none of it carried sufficient value to produce an appreciable profit under present working conditions. However, prospecting must obviously be continued notwithstanding the heavy cost, and it is unlikely that working costs will remain permanently at their present high level."

* * * *

Globe and Phoenix Report.

The report of the Globe and Phoenix for the year 1919 shows that the net profit was £137,893. One interim dividend was paid of 1s., leaving a balance of £97,393, which the directors propose to carry forward, but, for 1920, they feel justified in already declaring an interim dividend of 1s. 6d. per share free of tax, which will leave them with a "sufficient balance for the continuance of the policy laid down by the board and approved by the shareholders at the extraordinary general meeting held on October 29, 1919." To the end of December, the company had benefited to the extent of £4,442 by the gold premium, but since then a further amount of £57,462 has been recorded, making a total of £61,894. This no doubt determined the directors in declaring the aforesaid interim dividend. The report anticipates that working costs will be increased, but the gold premium will be in the nature of an offset. Naturally, Mr. T. Haddon continues to be general manager. The report on the mine, issued with that of the directors, is written by Mr. D. P. McDonald, who recommends that working should be continued, and who proposes to push it on energetically. He states that the value of the ore recovered has been sufficient to meet practically the whole cost of the work, and this is a good sign. The ore reserves are 108,182 tons, estimated to contain 175,691 ozs. of a value of £737,962, on the basis of 84s. per oz.; but the price of gold at the end of the year was 109s., so that the value is largely in excess.

TOPICS OF THE WEEK.

HOW THE CRISIS IS BEING MET.

Of vital interest to the whole community are the steps now being taken by the Government, the mines and the men to meet the present unexampled crisis in the history of the industry. Every company chairman who has dealt with the broad aspect of the problem in the past few days has emphasised the need for increased efficiency in the white labour force, and the figures quoted by Mr. Samuel Evans at the Crown Mines meeting, and by Mr. Newhouse at the Princess Estate meeting only too clearly prove that efficiency has fallen off seriously during and since the War. At the Village Deep meeting Mr. Izod, in characteristic fashion, put in a plea for "a big push" to save even that mine from disaster; and everywhere there are signs that all parties are awake to the need for thorough-going methods to meet a desperate situation. What the Chamber of Mines is doing may be gleaned from the words of the report of the Executive Committee. The Chamber is making every effort to have the recommendations of the Low Grade Mines Commission brought into operation, so far as it is able to do so. A number of the recommendations, including that for the importation of 5,000 tropical natives, cannot be carried out, however, without the consent of the Government. Owing to the large increase in costs, following the recent increases in wages to mine employees and the high bank charges for the transfer of funds from London to Johannesburg, coupled with the decrease in the gold premium, which has fallen from a maximum of 42s. 6d. to approximately 20s. per oz., a number of low-grade mines have found it impossible to continue operations, while others have only been able to do so by adopting a policy of retrenchment. The position was fully explained by the Chamber at a conference with representatives of the South African Industrial Federation and the South African Mine Workers' Union, while on the mines every opportunity is given to officials and employees to understand the position and to make any suggestions in regard to it which they think advisable. In order that efficient retrenched mine employees should be absorbed in the industry as soon as possible, the gold mining companies have agreed that they will not fill vacancies by applicants outside the Rand so long as a suitable applicant, previously employed on the mines, is available. In view of the considerable normal wastage on the mines this will also minimise the hardship on mine employees brought about by the unavoidable retrenchment. In order that these arrangements may be given effect to as efficiently as possible, steps are being taken to increase the usefulness of the Government Labour Bureau as an exchange for mine labour. On the other hand, what the Mines Department is doing was clearly explained by the Minister of Mines in the Assembly during the week. Interrogated by Mr. Feetham as to the opposition offered by the Executive of the South African Mine Workers' Union to the rearrangement of underground work proposed by the Chamber of Mines, the Minister explained that the proposals were very long, but the gist of them was to assist the low-grade mines in accordance with the suggestions of paragraphs 97 to 102 of the Report of the Low Grade Mines Commission. The Department had done everything possible to encourage consultation between employers and employees on the mines, and discussions were proceeding in what might be called a very satisfactory manner. Government officials were sometimes present at the consultations, but it was not considered desirable that the Government should interfere unnecessarily. The policy of the Department was to encourage self help and self determination between employers and employees in all industries, including the mines, with as little official or outside interference as possible. The Department was in a better position to intervene effectually in case of a deadlock, if somewhat detached from the earlier discussions. What the men themselves will do remains to be seen. They constitute the third party in the industry and they stand to suffer equally with the other two from the restriction of industry. Never had organised labour in our midst more need for sound and moderate counsels; and we can only hope that in its own interests as well as in the interests of the whole community it will rise to the unique responsibilities of the occasion.

SIEMENS BROTHERS

& CO., LIMITED

CABLES AND ACCESSORIES

TELEGRAPH
TELEPHONE AND
SIGNALLING APPARATUS

OVERHEAD LINE
EQUIPMENT

PRIMARY CELLS
&c., &c.

SIEMENS BROTHERS & Co., Ltd.,
WOOLWICH, LONDON, S.E.18
ESTABLISHED 1858.
Telegrams: "Siemens, Woolwich" Telephone: City 6400 (7 lines).

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.
Telephone 1202. Telegrams: "SIEMENS."

THE DIAMOND MARKET: ITS POSITION AND OUTLOOK.

No Slump in Prices—Overseas Demand as Great as Ever—Revival in Diamond Stocks Anticipated.

The present condition of the diamond market and its future prospects have been subjects for considerable debate during the past few weeks, and some very contradictory views have been given prominence to by the Press.

The Influences of War.

It is common knowledge that the South African diamond market which received a very severe blow through the outbreak of the great War has during the past three years revived to a remarkable degree. Recuperation in the gem market seems to have originated from War causes too. People in the turmoil of Eastern Europe quite early in the great conflict seem to have bought diamonds as an investment, for jewels are assets which are easily moved; a consideration of great weight in countries where military operations and Bolshevist anarchy render it necessary to be prepared to flee at an hour's notice. Under the fostering influence of the Diamond Syndicate, prices began to rise, and the upward tendency has been greatly helped by the accumulation of War riches, particularly in America.

A Record Year.

With astonishing rapidity a well-nigh bankrupt industry has grown to heights of stupendous prosperity. Last year the diamond output of South Africa was the most valuable ever recorded. During his Budget statement in the House of Assembly a few weeks ago, the Minister of Finance for the Union (Mr. Burton) said that, regarding diamonds, while production for 1919 was 50,657 carats more than in 1918, the estimated value of these diamonds showed an increase of £4,500,000, the price per carat having risen from £2 15s. in 1918 to £4 10s. in 1919. Alluvial diamonds had not fulfilled the lugubrious forecasts to which they had been subjected last year. These had showed a production of £2,710,518, or about 23 per cent. of the whole, so that it seemed to him that the export tax on alluvial diamonds had not had very much effect.

A Slump and a Revival.

Shortly after this statement was made, however, a "slump" in diamonds was reported. Alluvial diggers, it was said, were unable to dispose of their outputs. But this was quickly followed by a reported rapid revival. Speaking at the annual meeting of the Roberts Victor Diamonds, Ltd., held in Johannesburg the other day, Mr. J. Emrys Evans, who presided, confirmed the view that the diamond market is intrinsically as sound as ever. He said: "Although the local diamond market has recently experienced a slight setback in price owing to the difficulty of financing purchases in South Africa, the oversea demand is likely to be maintained at good prices far in advance of pre-War values. In any event, the low cost of production attaching to present operations, averaging as it does under 2s. per load treated, presents a fair argument in favour of the maintenance of satisfactory profits."

Latest advices prove Mr. Evans' diagnosis of the case to be perfectly correct. An organised effort on a large scale to squeeze the smaller producers has failed. To what extent the exchange question has affected prices it is difficult to say, but the fact remains that the demand for good class diamonds is as great as ever in America and Europe, and in well-informed quarters a marked revival in the price of diamond stocks in the near future is confidently anticipated.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams: "THAINE."

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

THE HALF YEAR'S DIVIDENDS IN DETAIL.

Influence of the Lesser Gold Premium—Valuable Far East Rand Contributions.

The following is the gold mining dividend list for the first half of the current year in so far as declarations to date are concerned. The table also shows the corresponding rates for 1919 and 1918:

Witwatersrand Gold Mines.

	Date.	Rate per cent.	Capital. £	Amount. £	Total for 1919		Rate % 1918
					Rate %	£	
Brakpan Mines	June, 1920	15	834,600	125,190	27½	224,365	32½
	Dec., 1919	15	823,600	123,540			
City Deep	June, 1920	12½	1,250,000	156,250	23¾	296,875	27½
	Dec., 1919	13¾		171,875			
Consolidated Langlaagte ...	June, 1920	5	950,000	47,500	12½	118,750	5
	Dec., 1919	7½		71,250			
Consolidated Main Reef ...	June, 1920	6¼	1,217,602	77,975	8¾	109,165	6¼
	Dec., 1919	6¼		77,975			
Crown Mines	June, 1920	27½	940,106	258,529	40	376,042	20
	Dec., 1919	35		329,037			
Ferreira Deep	Mar., 1920	10	980,000	98,000	12½	122,500	22½
	Sept., 1919	5		19,000			
Geldenhuis Deep	June, 1920	2½	585,753	14,644	10	58,575	7½
	Dec., 1919	7½		13,931			
Government G.M. Areas ...	June, 1920	20	1,400,000	280,000	37½	525,000	27½
	Dec., 1919	20		280,000			
Geduld Proprietary	June, 1920	7½	1,117,229	83,792	—	172,908	11¼
	Dec., 1919	8 shares per 100		172,908			
Langlaagte Estate	June, 1920	2½	886,500	22,162	15	132,974	12½
	Dec., 1919	7½		66,487			
Meyer and Charlton	June, 1920	50	200,000	100,000	120	240,000	110
	Dec., 1919	70		140,000			
Modder B.	June, 1920	32½	700,000	227,500	92½	647,500	82½
	Dec., 1919	47½		332,500			
Modder Deep	June, 1920	60	500,000	300,000	115	563,095	97½
	Dec., 1919	65		325,000			
New Modderfontein	June, 1920	45	1,400,000	630,000	70	980,000	51⅞
	Dec., 1919	37½		525,000			
New Unified	June, 1920	5	250,000	12,500	10	25,000	10
	Dec., 1919	5		12,500			
Nourse Mines	June, 1920	3¾	827,821	31,043	3¾	31,043	3¾
	Dec., 1919	3¾		31,043			
Robinson	June, 1920	5	2,750,000	137,500	7½	206,250	2½
	Dec., 1919	2½		68,750			
Rose Deep	June, 1920	10	700,000	70,000	25	175,000	17½
	Dec., 1919	17½		122,500			
Springs Mines	June, 1920	5	1,211,736	60,586	—	—	—
Van Ryn	June, 1920	7½	500,000	37,500	12½	62,500	10
	Dec., 1919	7½		37,500			
Van Ryn Deep	June, 1920	25	1,196,892	299,223	—	718,131	45
	Dec., 1919	25		299,223			
	Bonus New States—1 for 8			149,611			
Village Deep	June, 1920	2½	1,060,671	53,033	6¼	66,292	3¾
	Dec., 1919	6¼		66,292			
Witwatersrand	June, 1920	5	469,625	23,481	10	46,962	15
	Dec., 1919	5		23,481			
Wolhuter	April, 1920	6¼	860,000	53,525	5	43,000	6¼
	Oct., 1919	2½		21,500			
Outside Districts Gold Mines.							
Glynn's Lydenburg	Jan., 1919	7½	170,000	12,750	5	8,500	16¼
	July, 1920	2½		4,250			
Transvaal G.M. Estates ...	Mar., 1920	7½	604,225	45,317	3¾	22,658	6¼
	Sept., 1919	3¾		22,658			

Another Mining Plant Sale in Rhodesia.

R. W. Albertson, of Gatooma, also announces the sale, without reserve, of the whole of the plant and machinery on the Mountain Dew Mine on Friday, July 9th, commencing at 10 a.m. The plant is a 10-stamp gravity mill, together with 4-16 h.p. boilers and one of 25 h.p.; 2 mill engines (a Robey and a Marshall); four 5 x 8 hoists; one 6¼ x 8 hoist; Cameron No. 7 sinking pumps; one Cameron No. 9 station pump; some 15 tons of rails; and about 6,000 ft. of piping, from 4 in. to 1 in. In addition to the plant, there are four wagons, in excellent order, 102 oxen, and 100 head of breeding and slaughter stock. Transport rates are very competitive in the district, there being some six contractors. Motor transport will be available from Gatooma at from 7.30 a.m. Catalogues may be obtained at the office of this journal.

DEVELOPMENT VALUES ON THE FAR EAST RAND.

The Recent Disappointing Results—Lateral and Vertical Distribution of Gold Content Discussed—Declines in Percentages of Payability—A Mere Phase of Gold Mining—The Cycle of Fortune and the Probabilities of Improvement.

Recent development work in the Far East Rand gold field has amply confirmed the view which long ago was put forward by mining engineers and geologists that the payable sections of banket are separated by unprofitable zones of varying width and depth. This is, of course, much more than an opinion; it is an established and irrefutable fact. Nevertheless the general public does not yet appear to thoroughly appreciate the result of years of intensive development and careful sampling.

A Popular Fallacy.

There are a good many people who still apparently hold to the belief that the Far East annexe of the Central Rand is one vast basin of profitable conglomerate beds. This is clearly an entirely erroneous view, and recent development exposures at several of the large mines out east, and particularly at those properties in which the Government holds an interest and concerning which reports by the Inspector of Mining Leases were published in our issue of a fortnight ago, have made it very evident that the Far East Rand area is subject to fluctuations in value in a similar manner to the longer established Central Rand sections.

The Methuselah Controversy.

A few years ago a most vigorous and informative controversy raged in the Press on the subject of the value of the Main Reef conglomerate beds in depth. *The Engineering and Mining Journal of New York*, under the heading of "Even Methuselah Died," sought in a lengthy article to establish an analogy between the long-lived patriarch of the old Scriptures and the Rand. That journal declared that just as Methuselah died at last, so would impoverished value in the deeper levels of our mines bring to decay even the mighty Rand, which is by far and away the most wonderful and productive gold field ever discovered. The accuracy of this view was stoutly challenged in the columns of the *South African Mining Journal* by numerous mining engineers of authority, and notably by Mr. G. A. Denny. But time has proved that less gold is recoverable from an average ton of deeper level ore than from an average ton of outcrop. Whatever may have been the cause, whether undue selection of rich ore in the earlier days of the Witwatersrand, or an actual diminution of gold content in some degree rational to the depth of working or a contraction of pay zones in the deeper levels, is of mere academic and secondary importance by comparison with the fact that quite apart from the greater capital and current expenses of the deeper levels, Rand ore won from four or five thousand feet does not yield on the average such profitable values as did the older outcrop mines of the Central section in the 'nineties. This has, of course, been long since admitted by all technical authorities on the Rand. The point admits of no argument. "'Tis true 'tis pity, and pity 'tis 'tis true."

The Case of the Far East Mines.

The main consideration with which we are concerned at the present moment is whether the same impoverishment of values which has been evident in depth on the Central Rand is going to be observed on the Far East. The poor assays recently encountered in the southern section of Springs and in West Springs have tended to create a somewhat despondent view. The recent unsatisfactory development in the Daggafontein properties has not tended to imbue investors with any superabundant optimism in regard to the extreme south-eastern section of the "legitimate" Far East Rand. And Mr. Twiddy's latest reviews, which report a decline in the percentage of payability at Government Areas, Springs and Modder East during the first quarter of the year helped to augment the measure of despondency. But the fact that properties situated relatively near the outcrop, as well as deeper propositions, have recently recorded a falling off in the percentage of payable ore developed seems to point to the probability of values being not necessarily distributed according to zones in which enrichment and impoverishment are determined by depth. The gold shutes of the Far East Rand are known to have very considerable lateral variation of value. Practically every mine on the Far East Rand has encountered these poor patches as well as the rich ones and has witnessed many vicissitudes. Brakpan Mines has had several such periods of impoverished values. The Modder B. in its early stages of development gave little promise of ever becoming a large distributor of dividends, and most readers will readily recall the exceedingly disappointing results obtained by the Modder Government Areas in its first drives and headings. The most reasonable view to take of the present development aspect of the Far East Rand is that several mines are for the time being exploring zones of impoverishment. Whether there is anything more than a mere coincidence in the fact that the majority of mines all appear to be simultaneously suffering from a decline in percentage of payability or not remains to be seen. Doubtless there are cycles of lean years in the lives of gold mines and in groups of gold mines just as there are periods of droughts in the world of agriculture or cycles of bad luck in the fortunes of a gambler. We are, at any rate, of the opinion that the present phase will not be long-lived and that the zones of impoverishment will again change into shutes of enrichment as they have so often done in the past.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

THE MINES AND THE RAND WATER BOARD VAAL RIVER SCHEME.

The Case for Mines—Why They Cannot Support the Larger Scheme.

At a special meeting of the Rand Water Board held on the 18th instant the following recommendations from the Finance and Executive Committee came up for consideration, namely: (a) The adoption of a 5 million gallons a day Vaal River scheme with storage accommodation equal to a supply of 20 million gallons a day; and (b) That funds to the amount of £1,250,000 cash be obtained in connection with the carrying out of that scheme, and that the Fixed Charges in respect of that amount be obtained by the method provided under Act No. 18 of 1914.

In speaking on the recommendations, Mr. F. Raleigh said: "Before the recommendation of the Finance and Executive Committee is put, I think it is only right that I should again make it clear why it is that the mines' members of this Board propose to support a five million gallons a day scheme, when in 1914 they were parties to an amending Act which provided for a ten million gallons a day scheme. Before making this explanation, I would again say that the mines are perfectly willing, as all members of the Board well know, that a ten million gallons a day scheme should be adopted, provided the existing basis for allocating the standing charges be altered in such a way that all constituent bodies drawing water pay the same flat rate for the water drawn, which rate will include the Board's standing charges. As the Mines' members have failed to get the Municipalities to agree to this alteration in the allocation of the standing charges, they have decided to support a resolution which, whilst no change is made in the existing method of allocating the standing charges, only commits them to bearing their *pro rata* of approximately the original sum agreed to be expended. The reasons why the Mines' members are not prepared to support a ten million gallons a day scheme, whilst the standing charges remain to be provided at as present, viz., 46¼ per cent. by the Municipalieies, 46¼ per cent. by the Mines, 7½ per cent. by the Railway Department, are as follows: (1) The cost of such a scheme would be £1,000,000 in excess of the sum fixed to be expended when the Vaal River Scheme was agreed upon by the Chamber of Mines at the end of 1912, *i.e.*, 7½ years ago. (2) By the time the Vaal River Scheme is completed (say three years from now) a period of over 10 years will have elapsed since the Mines agreed to the scheme. During this period their position has been adversely affected by increased costs, due to the War, and their reduced lives. Even between now and three years hence some of the mines will have fallen out by exhaustion of ore and consequent on the increased costs of working; others will follow shortly after. Many of the mines which would have shared in the cost of the scheme had it been carried out when agreed upon will be out of existence when it comes into being, or will have had their lives considerably reduced, thus throwing a heavier burden on the remaining mines. (3) The Mines' requirements of water do not now justify a ten million gallons a day scheme in addition to existing supplies.

"There is nothing new to this Board in the suggestion that a flat rate including standing charges should be charged to all constituents, as when the Board was formed in 1903, such a rate was charged under the Board's statutes. It was only altered in 1908 to meet the Municipalities, as they were then drawing 80 per cent. of the Board's water, were responsible for 80 per cent. of its standing charges and were faced with having to pay 4s. 6d. per 1,000 gallons for their water, because the Board could not then sell more than three million gallons per diem. They then approached the Mines with the object of 'minimising or removing the inequity.' The outcome of the negotiations was that a new arrangement, which placed the standing charges equally on the Mines and the Municipalities, supplied water to both parties at pumping cost, and thus avowedly created a demand from the Mines for water at pumping cost, which previously could not be sold by the Board because of its prohibitive price. According to the Board's engineer's estimate of water consumption when the Vaal River Scheme is completed in 1923:

	Mill. Galls. per day.	Percentage Increase.
The Municipalities will increase their drawings from	3·9 to 7·7 =	93·2
The Crushing Mines will increase their drawings from	5·1 to 5·9 =	15·7
The Railways will increase their drawings from	1·0 to 1·3 =	36·4
Other Consumers will increase their drawings from	0·33 to 0·63 =	89·5
Over-all increase from	10·4 to 15·6 =	49·6

"If the above estimate is correct—and as far as the Mines are concerned, I can say we consider it to be an overestimate in the light of the number of mines which are likely to close down—it is easy to see by whom the great bulk of the increased consumption is to be made. Regarding the Mines' consumption, speaking generally, the tonnage milled is the factor which determines their water demand on the Water Board. In 1914 the tonnage milled by the Witwatersrand gold mines was 25,702,000 tons; in 1919 the tonnage milled was 24,043,000 tons: decrease, 1,669,000 tons. Those of us who are following the events of to-day are convinced that last year's tonnage is likely to show a considerable decrease in the near future. In a report prepared by the Board's engineer, he submits a list of mining companies which he states may close down in the next four years. The annual tonnage milled by these companies is 8,162,000. From this may be deducted about 2,500,000 tons for companies at present developing on the Far East Rand. In any case, assuming the figures to be right, there will be a reduction of 23 per cent. in the present tonnage milled by the time the Vaal River Scheme comes in, or shortly after. I would again make it clear that the Mines are not dependent on the Water Board for the whole of their supply. The Mines consume approximately 28 to 30 million gallons a day. Of this amount, about 5·1 million gallons have been their average drawings per day from the Board, the balance being provided from the Mines' own sources of supply. Of this 5·1 million gallons drawn from the Board, about 3·5 million gallons a day are used by the Mines for domestic and health purposes, leaving, say, 1·6 million gallons a day used by the Mines for industrial purposes. Furthermore, the Board draws approximately 1 million gallons a day from the Mines on the Far East Rand, which is put into its reticulation system, and in considering the Mines' drawings from the Board due allowance should be made for the 1 million gallons which do not come from the Board's own sources of supply. In conclusion, I would remark that if the Municipalities require a 10 million gallons a day scheme the Mines simply ask that the arrangements which were in force when the Board was first established should be re-enacted, as the Mines contend that the reason for the alteration made in 1908 at the request of the Municipalities no longer exists. If the Municipalities require a 10 million gallons scheme the onus lies with them in not obtaining it. I personally have been to considerable pains to fully explain the Mines' position to them. This I have done in a printed memorandum which was circulated to all Municipalities and by offering to interview them personally; in fact, I have been accorded interviews with the Councils of the Municipalities of Johannesburg, Germiston, Roodepoort-Maraisburg and Krugersdorp, or Committees of them." The other speakers at the meeting have already been fully reported in the daily papers, and we print Mr. Raleigh's speech in full because it puts clearly forth the case for the Mines.

THE MINES AND THE BANKS.

A Bewildering Analysis—The Leaders of Our Industry and the Directors of Our Banks.

One of the factors which has been instrumental in recently causing a general decline in the profits of Rand gold mining companies, and in bringing about a period of depression, has been the heavy charges imposed by the banks in realisation of the output of the gold mines.

At recent company meetings several chairmen have alluded to this very severe handicap under which the Reef is suffering, and the banks generally have come in for a good deal of adverse criticism from the leaders of the gold mining industry.

Mr. Christopherson's Complaint.

Thus at the annual meeting of the Jupiter G.M. Company, held on March 26th last, Mr. Douglas Christopherson, C.B.E., who presided, remarked:—"The banks are now charging the mining companies 6 per cent. for advances against gold, as against 3-16ths per cent. a few months back. Consequently, under present conditions, very little benefit is derived by the Company, even if a 29½ per cent. premium is obtained. So far as the bank charges are concerned, we hope the legislation which General Smuts has forecasted as likely to be introduced at an early date will to some extent be the means of bringing down these charges, as well as removing other stringent measures the banks claim they have had to adopt, and which measures are not only severely handicapping the gold mining industry, but also are seriously affecting the trade of the Union generally." Since Mr. Christopherson made those remarks bank realisation charges have further increased: for the month of May the Central Mining-Rand Mines Group took the value of their output at £5 5s. per fine ounce, less realisation charges of 8s. 9d. per fine ounce.

Mr. Samuel Evans' View.

At the Crown Mines meeting, held on June 16th, Mr. S. Evans, who presided, stated that realisation charges for the year had cost the company £40,316 6s. 11d. Mr. Evans also went on to remark:—"Notwithstanding the example of England and the fact that all the experts agree that if paper money is multiplied more quickly than production is increased, prices will go up, the South African banks have been issuing paper money at an accelerating pace. At the time the War commenced the banks had £2,150,000 of notes in circulation in South Africa. During the War they issued an additional £4,000,000 of notes, and since the Armistice they have further added about £3,500,000 to the paper circulation of South Africa. It would be difficult to conceive a more mischievous policy as far as the permanent welfare of the people of South Africa and their industries is concerned. In my opinion, the banks are sowing the seed of much future trouble. It will take many years to repair the injury which is being done."

We have quoted Messrs. Christopherson and Samuel Evans on the subject of the policies of the banks and the influence these institutions are having on the trade of the country generally and the trade of the gold mines in particular. Numerous other directors of Rand gold mining companies have recently made similar utterances to those of the chairman of Crown Mines and the chairman of the Jupiter, but we think that sufficient has been said to show that in the considered opinion of the leaders of the mining industry the banks are in large measure to blame for the present plight of the mines.

The National Bank and its Directors.

So much for the leaders of the mining industry. What now of the leaders of the banking industry?

The balance sheet of the National Bank of South Africa has just been issued, and it shows that the bank earned the very fine profit of £515,477 2s. 10d. during the year ended with March 31st, 1920.

No doubt some considerable portion of this profit was derived from the increased gold realisation charges imposed upon the suffering gold mines. "Naughty National Bank" we can hear the leaders of the mining industry exclaim. "Naughty National Bank, to make so much money and to treat the poor gold mines so unfairly!"

But who, as a matter of fact, are the leaders of the banking industry in South Africa? Well, to deal with the National Bank first of all—

The directors are: The Hon. Hugh Crawford (chairman), J. Emrys Evans, C.M.G. (vice-chairman), Patrick Duncan, C.M.G., James R. Leisk, C.M.G., the Hon. Albert Oliff, Ernest Oppenheimer, E. J. Renaud, Edward C. Reynolds (managing director), James B. Taylor, the Hon. Sir Edgar H. Walton, K.C.M.G., M.L.A., and H. O'K. Webber.

The Hon. Hugh Crawford is a director of the Anglo-American Corporation of South Africa, which, amongst other interests, has a large shareholding in Brakpan Mines and Springs Mines—two large producing mines on the Far East Rand.

Mr. J. Emrys Evans, C.M.G., sits on the Boards of a number of South African gold and diamond mining companies, including the Johannesburg Consolidated Investment Company, which, incidentally, controls six producing Rand gold mines.

Mr. Evans is also a trustee for the debenture-holders of the Transvaal Gold Mining Estates, Ltd.

Major James R. Leisk, C.M.G., is chairman of the City Deep, Ltd., and a director of the Central Mining and Investment Corporation, which controls more gold mines and pays more in bank realisation charges than any other gold mining corporation in the world.

Mr. Ernest Oppenheimer is chairman and permanent director of the aforesaid Anglo-American Corporation. He is also a director of Brakpan Mines, Springs Mines, West Springs, Daggafontein Mines, the Consolidated Mines Selection Company, and the Rand Selection Corporation, Ltd.

Mr. E. J. Renaud is a director of Brakpan Mines, Ltd., City and Suburban Gold Mining and Estate Co., Ltd. (local Board), Consolidated Main Reef Mines and Estates, Ltd., Crown Mines, Ltd., Wolhuter Gold Mines, Rand Mines, Ltd., and numerous other Rand gold mining companies.

Mr. H. O'K. Webber is a director of the New Kleinfontein G.M. Co.

So much for the National Bank of South Africa.

The A.B.C. of High Finance.

Let us consider now the directorate of the African Banking Corporation, another important institution which, according to the leaders of the mining industry, has been

African Banking Corporation, Ltd.

Authorised Capital - - -	£2,000,000
Subscribed Capital - - -	£2,000,000
Paid-up Capital - - -	£1,000,000
Reserve Fund - - -	£ 360,000
Reserve Liability of Shareholders -	£1,000,000
	£2,360,000

Head Office: 63, London Wall, London, E.C

☞ Branches throughout South Africa and Agents and Correspondents throughout the World.

instrumental in taking a good many pounds out of the pockets of the shareholders of Rand gold mining companies through this extortionate medium of gold realisation charges.

The directors of the African Banking Corporation are:—The Right Hon. the Earl of Selborne, K.G. (chairman), Robert Littlejohn (deputy-chairman), Stanley Christopherson, Solomon B. Joel, J.P., Sir Godfrey Y. Lagden, K.C.M.G., the Right Hon. the Earl of Midleton, K.P., William James Thompson, and George W. Thomson, J.P.

With reference to Mr. Christopherson, the latest edition of *Skinner's Mining Manual* informs us that Mr. Stanley Christopherson, 8 Old Jewry and 2 Thorney House, Smith Sq., S.W.1, and Hill Close, Sherringham, is a director of Consolidated Gold Fields of South Africa, Ltd., Gold Fields American Development Co., Ltd. (chairman), Gold Fields Rhodesian Development Co., Ltd., National Mining Corporation, Ltd., and New Consolidated Gold Fields, Ltd.; and Mr. Douglas Christopherson, C.B.E., who told shareholders in the Jupiter that the action of the banks was severely handicapping the gold industry, is closely associated with the same group of companies as those which Mr. Stanley Christopherson is connected with.

The Swings and the Roundabouts.

It seems hardly necessary to say any more. But there is an old remark which was originally applied to country fairs, and which is something to the effect that what the showman lost on the swings he made on the roundabouts, and which seems to our lay minds, unversed as they are in the laws of banking and the intricacies of high finance, to have some remote application to the subject of the mines and the banks.

Candidly, we feel somewhat bewildered.

PERSONAL.

Mr. John Chilton has been unanimously elected President of the Chemical, Metallurgical and Mining Society.

* * * *

The annual dinner of the members of the Association of Certificated (S.A.) Mechanical and Electrical Engineers will be held on July 3 at the Carlton Hotel.

* * * *

The twenty-fourth annual general meeting of the Chemical, Metallurgical and Mining Society will be held in the Lecture Theatre, South African School of Mines and Technology, Johannesburg, on Saturday, the 26th inst., at 7.45 p.m.

* * * *

Mr. E. G. Izod presided over a notable gathering of engineers who assembled the other evening to bid farewell to Mr. A. E. du Pasquier, the outgoing President of the S.A. Institute of Electrical Engineers, and General Manager of the British Westinghouse Company, now merged in the Metropolitan Vickers Co.

* * * *

A change has lately been made in the offices of Messrs. Armstrongs & Main, Ltd., from Barsdorf Building to Elswick Chambers at the corner of Marshall and Simmonds Streets. The business is an amalgamation of the Engineering Works Department of Armstrong-Whitworth with the well-known structural firm of A. & J. Main & Co., Ltd.; and these offices house the Johannesburg branch of this combine. In addition, the firm is acting as the sole South African representatives of all the Armstrong-Whitworth commercial products.

BY-PRODUCT COKE OVENS AND PLANT

THE SEMET-SOLVAY OVENS
BUILT BY
The Coke Oven Construction Co., Ltd., Sheffield
WILL GIVE THE BEST RESULTS AT THE LOWEST WORKING COST.

Several thousand Ovens have been built throughout Great Britain, France, Belgium and America, etc., amongst which will be found the following Firms:

BRUNNER, MOND & CO., LTD.
W. BAIRD & CO., LTD., 210 Ovens.
WIGAN COAL & IRON CO., 132 Ovens.
STRAKERS & LOVE, 120 Ovens.
BRYMBO STEEL CO., LTD.
UNITED ALKALI CO., LTD.
BOLCKOW, VAUGHAN & CO., 290 Ovens.
JOHN LYSACHT LTD., 96 Ovens.
THE BROKEN HILL PROPRIETARY CO., LTD., 156 Ovens. And repeat order, for a further 66 this year (1920).

Agents for South Africa, from whom all particulars can be obtained:—

HANNAM, BONSALL & CO.,
7, MAXWELL BUILDINGS, HARRISON STREET, JOHANNESBURG.
P.O. BOX 4236. 'PHONE 4907.

PILGRIMS REST MINES AND CLAIMHOLDERS' ASSOCIATION.

A general meeting of the Pilgrim's Rest Mines and Claimholders' Association was held in the Royal Hotel recently, when the following were present: Messrs. M. Haskel (Chairman), A. Scrymgeour, J. H. Alcock, J. L. Turner, J. Kuzzulo, A. Language, G. H. Hill, H. E. Cormack, G. W. Menzies, G. Irvine, K. N. Lambert, E. Anderson, H. MacDougall, H. J. Joubert, Jno. McIntyre, F. P. Goold, J. L. Shkaidy, J. J. McNally, and the Hon. Secretary, Mr. Edward Ecker.

The Secretary gave a brief account of the financial position of the Association (a deficit of 18s. 8d.), and said that, although there were close on sixty members, the operations of the Association had been practically suspended during the past four years, owing to the war, etc. He advised a fresh start, and that a new list of members be framed.

CHAIRMAN'S ADDRESS.

The Chairman (Mr. Haskel) said: Gentlemen,—As the agenda is a very extensive one, I will confine my remarks to the most essential matters. The present committee has now carried on for a period of three years. Unfortunately the exigencies of the War and Armistice situation, and the fact that many of our members were away on service, limited the activities of our Association to such an extent that it was impossible to take action except in the most urgent matters, and made the election of a fresh committee both difficult and not very important. We hope, however, that the time has come when we can get the ear of the Government and the House of Assembly as regards such important public affairs as a Commission for the outside fields; a new Mining Law, and, pending a new Mining Law, the throwing open of farms to prospecting or even the pegging of claims. I may say that in these matters the Government claimed they could do nothing of a contentious nature during the War and immediate post-war situation. I am glad to say, however, that a very important matter was carried through amongst the miscellaneous provisions of the Mining Lease Amendment Bill. I refer to the remission of the Governmental share of claim licences under Clause 20 of Act 30 of 1918. I think I may claim that the reasonable point of view put forward by our Association, by letter and deputation and in our magazine, together with the sympathetic attitude of Sir Robert Kotze, the Government Mining Engineer, was mainly responsible for obtaining this important concession, and I hope that Clause 20 is only the forerunner of the "work or pay" principles of a new Mining Law. As a rather narrow view had been taken of the application of this clause, two of our members interviewed the Department and Sir Robert Kotze, with the result that the application was put on the broader lines originally intended. As regards a Commission for the outside fields, I would like to put the meeting in possession of what has already been done. The committee approached both the Low Grade Mines Commission and the Government as regards giving evidence on behalf of the outside fields. This, however, was refused. Later on, after the evidence for the interim report had already been led, our Secretary was informed that we could give evidence. We felt, however, that permission so grudgingly given would only result in the evidence being pigeonholed, and we determined to move in the matter of a Commission to go into the whole matter of the better establishment of the outside fields and the best means of developing the mineral resources of the Transvaal in other districts than the Rand. This matter will come up for discussion later in the agenda. As regards a new Mining Law, our members are fairly conversant with what our Association has done, and I would like at present to give a resume of a discussion by the Mining and Metallurgical Society on a very interesting paper in which Mr. Trevor took up the economic aspects of the outside fields. Mr. Howard, Secretary of the Mines and Claimholders' Association, Lydenburg, had read a paper embodying his suggestions for a new Mining Law, before the South African National Union, and Mr. H. E. King, in discussing Mr. Trevor's paper, brought forward Mr. Howard's suggestions. The matter was taken up strongly by the Chemical and Metallurgical and Mining Society of South Africa. Mr. H. A. White very ably moved the following resolution: "That the Chemical, Metallurgical and Mining Society of South Africa earnestly requests the Government to provide funds for the training and maintenance of suitable returned soldiers and phthisis men as prospectors under the direction of the Government Mining Engineer." The resolution was ably seconded by Mr. E. M. Weston, and forwarded to the Minister of Mines with covering remarks and examples from the other Dominions. Eventually the following reply was received from the Acting Secretary of Mines and Industries: "I am directed to state that, while agreeing that this country is in need of properly trained prospectors, the Department doubts the practicability of employing men as Government Prospectors as contemplated in the resolution of the Chemical, Metallurgical and Mining Society of South Africa. In the first place, as the Mining and Land Settlement Laws stand to-day, Government prospecting parties would be obliged to confine their work to unoccupied Crown Lands." (What a terrible admission for a Mines Department in a great undeveloped country like the Transvaal.) "Secondly," the reply goes on, "it would be very difficult if not impossible to exercise the control over such prospectors, which would be necessary if any remuneration were paid by the Government." The Department stated, however, that they were putting a scheme in hand for the training of prospectors which might take practical shape about March. Our local Mines Office say that they have heard nothing of the scheme, and as a matter of fact until a new Mining Law gives the prospector the opportunity of prospecting fresh areas and the certainty of reaping the reward of his work, no man should be encouraged to take up a life which, if persisted in, can only reach a dead end of destitution and despair. Well, gentlemen, in replying to the discussion of his paper, I am very glad to say, Mr. Trevor, who is really Mines Prospector for the outside fields, took up a very strong attitude as regards the necessity for a new Mining Law, which should have for its central idea open prospecting. He also had the courage to enunciate eleven points, which should help to make the framework of the law. We shall endeavour to get Mr. Trevor's points circulated amongst our members, and hope to have a discussion on them at an early date. Gentlemen, I think it should be our great and essential object to work for a new Mining Law, which will allow of the development of the mineral resources of the Transvaal on sound and equitable lines. We know from the instance previously mentioned and many other instances, when our very able member, Mr. Schurink, has put the case for the outside fields before the House of Assembly, that we get the unanimous sympathy of the public and all sections of Parliament. The only difficulty that we have is in giving legislative enactment to ideas of which only a few can have first-hand knowledge. We must demand a Commission to go into the whole matter of the outside fields, and the further development of the mineral resources of the country. We want no one-sided legislation such as occurred in the Gold Act of 1908, but a reasoned, balanced Act, founded on such lines as have been proved in other countries, and the universal principles of just and right.

DISPOSAL OF GOLD.

Mr. Turner gave his experience with reference to arrangements made by the bank with different people; the bank charges were not the same to all customers.

Transvaal Gold Mining Estates, Ltd.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-third Ordinary General Meeting of Shareholders for the year ended 31st March, 1920, will be held in the Board Room, Second Floor, The Corner House, Johannesburg, on WEDNESDAY, 22nd SEPTEMBER, 1920, at 3 p.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st March, 1920, and the report of the Directors and Auditors.
2. To elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
3. To determine the remuneration of the Auditors for the past audit, and to appoint Auditors for the ensuing year.
4. To transact any other business which may be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Share Transfer Books of the Company will be closed from the 16th September to the 22nd September, 1920, both days inclusive.

Holders of Share Warrants who desire to be present or represented at the Meeting shall produce their Share Warrants (or may at their option deposit same) at the places and within the time following:—

(a) At the Head Office of the Company in Johannesburg, at least 24 hours before the time appointed for the holding of the Meeting.

(b) At the London Office of the Company, No. 1, London Wall Buildings, London, E.C.2, at least 30 days before the date appointed for holding of the Meeting.

(c) At the Credit Mobilier Francais, 30 and 32, Rue Taitbout, Paris, at least 30 days before the date appointed for the holding of the Meeting. Only Share Warrants bearing French stamps can be produced or deposited at the Credit Mobilier Francais.

And shall otherwise comply with the "Conditions as to the issue of Share Warrants" now in force.

Upon such production or deposit a Certificate with Proxy Form will be issued, under which such Share Warrant Holders may attend the Meeting either in person or by proxy.

By Order of the Board,
TRANSVAAL CONSOLIDATED LAND AND
EXPLORATION CO., LTD., Secretaries.
Per C. L. READ.

Head Office: The Corner House,
Johannesburg, 10th May, 1920.

Mr. Scrymgeour illustrated what he had done with his first bar of gold and how he had subsequently disposed of his gold.

Messrs. Kuzzulo and Shkaidy and others entered into a general discussion, and eventually it was resolved to appoint a sub-committee to interview the bank manager and then to report to Mr. Schurink, who was interesting himself in the matter. Messrs. Haskel, Scrymgeour, Turner, and Brondum were appointed on the sub-committee.

MINING ROADS.

The Chairman said that, thanks to our Mining Commissioner (Mr. Dyke Poynter), the mine roads have been kept in perfect repair, to the great satisfaction of members of this Association. If any member had a complaint at any time about the roads, he had only to go to the Mine Office when he would be assisted.

COMMISSION FOR OUTSIDE FIELDS.

After some discussion, it was resolved that the sub-committee previously appointed take all necessary steps to have a Commission appointed to go into the whole matter of the better establishment of the outside fields; and that Messrs. Schurink and Trevor be communicated with.

THROWING OPEN OF FARMS.

Mr. Scrymgeour explained the steps taken by the Association to have certain farms thrown open for prospecting. At first the War prevented the farms being thrown open, but even now, after the return of our men from active service, for some unknown reason, it was impossible to get the Government to fulfil promises made during the War. He, therefore, moved that steps be taken to have the following farms thrown open. Willemsoord, Bodashoop, Goedgeloof, and the north-western areas (junction of Steelpoort and Olifant's River. This was seconded by Mr. Kuzzulo and carried.

A letter on the same subject, with reference to the farm Tweefontein, from the Sabie Association was also read.

NATIVE LABOUR.

In reply to a letter from the Sub-Native Commissioner, it was resolved, after discussion, that this Association, owing to the varying conditions of work on the different mines in this district, do not favour the standardising of native wages. It was also resolved that the Sub-Native Commissioner be requested, in the event of any future trouble with the natives, to circularise the different employers of labour.

RULES OF THE ASSOCIATION.

A sub-committee was appointed to revise the Rules of the Association. The annual subscription was fixed at 10s. for ordinary members, and £1 per stamp for members who are in full work.

ELECTION OF OFFICERS.

The following office-bearers were elected for the current year:—Chairman, Mr. M. Haskel; vice-chairman, Mr. A. Scrymgeour; committee, Messrs. H. MacDougall, K. N. Lambert, J. L. Turner, H. E. Cormack, D. Gregory, A. Brondum, R. W. Richardson, W. Davies, and E. Randolph Mr. P. J. Munro was elected president, and Mr. H. T. Glynn, vice-president. In moving the re-election of Mr. Edward Ecker as secretary, the Chairman spoke in the highest terms of praise of the excellent services rendered by that officer as honorary secretary. This was endorsed by all present, and Mr. Ecker was unanimously re-elected secretary. It was decided to have regular monthly meetings in future.

REMOVAL OF MINES OFFICE.

Mr. Jno. MacIntyre brought forward this matter, and severely criticised the manner in which the petition for the transfer of the Mines Department to Sabie had been got up. He thought this Association should take immediate steps to prevent the transfer, and ascertain whether the petition had gone through the local Mines Office or sent direct to Pretoria or Capetown. After discussion, the following sub-committee, with full power to act, was appointed to interview the Mining Commissioner: Messrs. Haskel, Scrymgeour, MacDougall, Menzies and Cormack. It was resolved, with a view for united action in all mining matters, to invite the Sabie Mines and Claimholders' Association to appoint two of its members to attend the meetings of this Association, and to allow two members from here to attend the meetings of the Sabie Association.

RUMOURS OF MINES CLOSING

On account of the rumours of certain mines closing down, members were requested to report to the committee immediately matters became critical. This concluded the business of the meeting.

HEAD, WRIGHTSON & Co. (SOUTH AFRICA), Ltd.

Specialists in

Gold Mining Plant, Colliery Plant, Blast Furnace Plant, and all Classes of General Engineering.

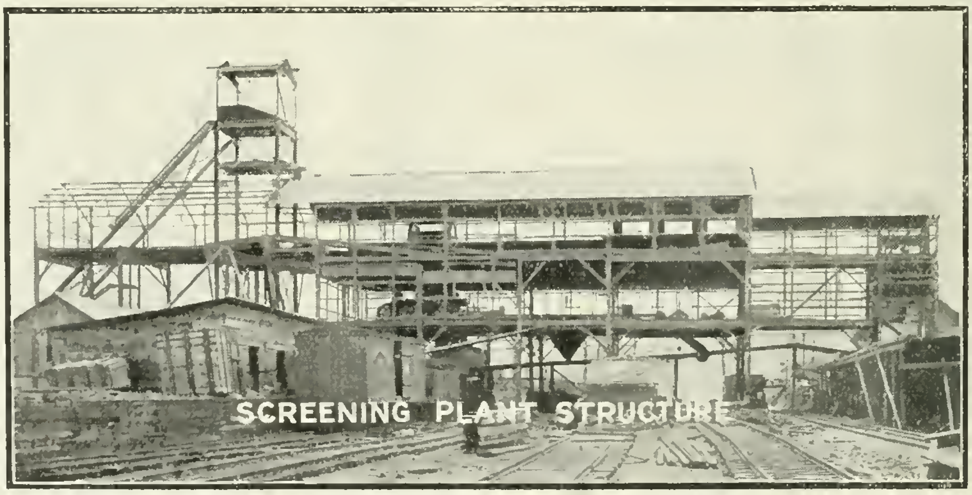
WATCH THIS SPACE ☞

COAL HANDLING, SCREENING and WASHING PLANTS

Send for particulars of the "NOTA NOS" Coal Washer and "MARCUS" Screen-Conveyors.

P.O. Box 1034 or

47/48, Standard Bank Chambers, JOHANNESBURG.



EMERALD DIAMONDS: SUCCESSFUL FLOTATION.

Ample Working Capital Provided—Extracts from Engineer's Reports—A Promising Outlook.

Elsewhere in our columns will be found an abridged statement as to the activities and enterprises of Emerald Diamonds, Ltd. Registration of this company has been completed; the flotation is proceeding satisfactorily, and the company is embarking on a scheme of comprehensive development of its large and valuable holdings. In previous issues we have dealt at some considerable length with the reports of competent engineers who have visited the Emerald Company's properties, and who, after a searching and close examination, have come to the considered conclusion that the potentialities of the areas secured and controlled by the company are very great indeed.

Extracts from Engineers' Reports.

Thus Mr. V. Grindley Ferris, who was for some years on the technical staff of the Consolidated Gold Fields of South Africa, and who has now been appointed consulting engineer of the company, states his conviction that "the stretch of country controlled by the Emerald Diamonds, Ltd., has great possibilities, which fully justify the formation of this company with sufficient working capital to thoroughly exploit these areas. This concern has been most fortunate in securing such a large compact area of country in what is now being proved to be a most important diamondiferous belt, and is to be congratulated on the foresight displayed in acquiring this ground and wasting no time in hastening on the necessary prospecting work. This exploratory work has been very much impeded by the recent heavy floods and the consequent delay in transport, but it is surprising to see how much has been done, despite these difficulties, during the short time the company has had control of these areas. The most favourable indications evidenced in the farms so far partially exploited, coupled with the great speculative possibilities of other areas favourably situated, but on which no work has yet been done, make me view the prospects of the Emerald Diamond Company with every confidence."

The well-known consulting geologist, Dr. Merensky, in concluding his report on the properties, stated: "The fact cannot be denied that within the short time since the farms were secured a relatively large number of kimberlite occurrences and prospects have been located, the discovery of two pipes being particularly noteworthy. This is the more remarkable as all the discoveries were made by inexperienced men, from which fact it will be evident that the conditions from a prospecting point of view are very favourable. The actual extent and the value of the various occurrences remain now to be proved by further investigations. Whatever the results may be, from general observations and the indications I came across during my inspection of the farms, there is no doubt in my mind that on the systematic prospecting of the ground new discoveries will be added to those already known. Having regard to all these facts and considerations, I am convinced that the farms this report has been dealing with present exceptional possibilities."

First Quality Stones Found.

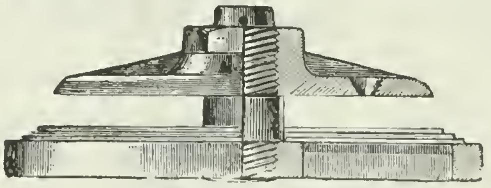
Since these reports were made the mine on Kouwater has been proved to be of very large extent. Its dimensions have not yet been determined, but already at this early juncture in the company's history it can safely be stated that the pipe on Kouwater (which quite likely extends on to Makganyene 2) is one of the largest kimberlite occurrences ever discovered. Moreover, the pipe has been proved to contain diamonds of fine quality and stones of similar value have already been recovered from other areas under Emerald Diamonds control.

Capital and Directorate.

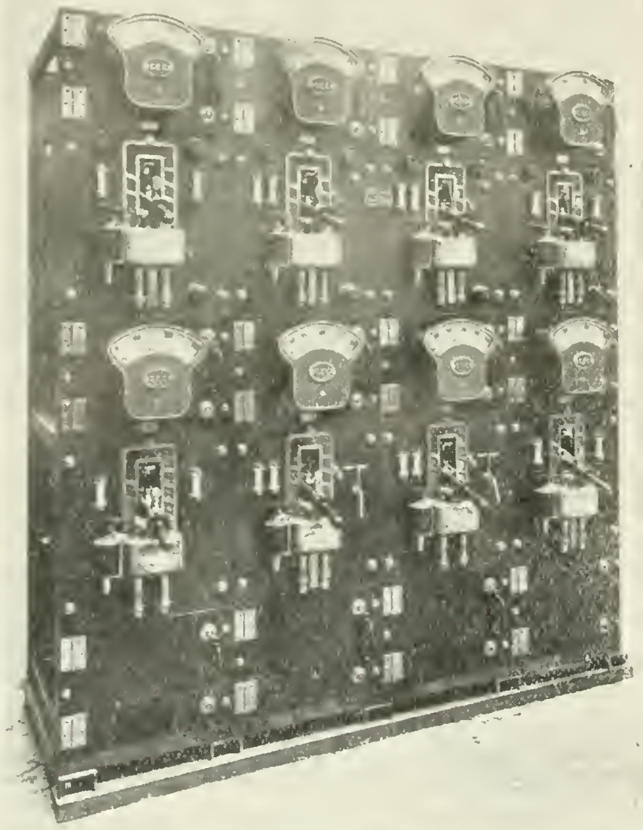
The registered capital of the company is £500,000 in 1,000,000 shares of a nominal value of 10s. each, of which £350,000 is working capital, an ample and large provision which will enable the company to attain to the productive stage on a large scale. A strong board has been formed, the directors being the Marquis of Queensberry and Messrs. L. Lewe, B. Alexander, Julius Oppenheimer and V. C. Cloete. The properties controlled comprise an area of about 500 square miles and are situated in the fashionable Postmasburg area and are practically all in one block. Having regard to the improved outlook for the diamond market and the fact that this company will have a large working capital with which to exploit its numerous diamond-bearing propositions, the outlook for the company appears to be decidedly promising. We understand that the application list which closes on July 10th is filling rapidly. The company has issued an attractive brochure containing reports of the engineers in full, together with general information, a map of the properties, illustrations, particulars of contracts, and application form, and this may be obtained at any branch of the Standard Bank of South Africa.

MATTEY HARRIS,
SHORTHAND AND TYPING BUREAU.
Phone 5743.
BASEMENT,
9. STOCK EXCHANGE BUILDINGS,
JOHANNESBURG.
Mining Reports, Engineers' Reports, Specifications, etc., copied accurately and promptly.
Copying Work from outside districts invited.

KINGHORN'S PATENT METALLIC VALVES
—FOR—
PUMPS of all Descriptions



ALL SIZES NOW IN STOCK.
SOLE SOUTH AFRICAN AGENTS:
GEO. CRADOCK & Co. (S.A.),
LIMITED
75 - 77, CULLINAN BUILDING,
JOHANNESBURG.
Telephone 539. P.O. Box 316.
Telegraphic Add: "ROPES."



Wilton Switchboard equipped with Witton Oil Switches.

TO INSURE AGAINST

BREAKDOWNS

AND

INCIDENTAL LOSSES

PROTECT YOUR PLANT

by

Witton

Cubicle Type

Control Boards

For use on Systems up to 10,000 Volts.

Convenient for Extensions.

The system of interlocks fitted renders the whole cubicle safe for operation, even by unskilled attendants.

BRITISH MADE

THE BRITISH GENERAL ELECTRIC Co., Ltd,

JOHANNESBURG.

P.O. BOX 2406.
TELEGRAPHIC ADDRESS: "CURRENT."
Branch Office: 83/89, Castle Street, CAPETOWN, and at PORT ELIZABETH, EAST LONDON, DURBAN, BULAWAYO, ETC.
SOUTH AFRICAN BRANCH OF
THE GENERAL ELECTRIC CO., LTD., ENGLAND.

THE WEEK IN THE SHAREMARKET.

A Turn for the Worse—Springs a Weak Feature—Business Stagnant.

AFTER a fairly substantial recovery consequent on the reduction of the bank rate of exchange, the market has taken a turn for the worse again. Rumours of a further reduction in the bank rate are plentiful and are attached importance to in responsible quarters. But despite reports of contemplated action which must be highly beneficial to the industry, quotations for stocks are in every instance lower than they were at the beginning of the week and in many instances the decline has been serious. The weakness of the market is difficult to understand. In some quarters it is ascribed to nervousness as to the situation in the Middle East by large operators in Paris and London and to one or two large failures on the Continent. But it seems probable that the heavy decline in Springs Mines shares which have relapsed to 33s. has much to do with the local slump. New Modders have remained fairly firm at and around 69s. and 70s., and Modder Bs. and Deeps are only fractionally weaker at £6 2s. and 47s. respectively. Modder Easts, however, after a spurt up to 25s., are back to 22s. and the red or three-year options are quoted at 9d. Anglo-Americans, despite reports of new and favourable business impending, are back to 33s. As to diamonds, Frank Smiths have declined to 13s. 6d., although the latest news from the mine is highly satisfactory. Crowns and Roberts Victors are appreciably weaker, but the shares of the new Emerald Diamonds Company have been dealt in at a small premium and the flotation has been favourably received. Greig Diamonds are slightly better at 12s. The only tin stock to be dealt in to any marked extent is Leeuwpoorts, which have had transactions around 16s.-17s. African Oils are marking time around 15s. The market generally at the time of going to press is quite stagnant.

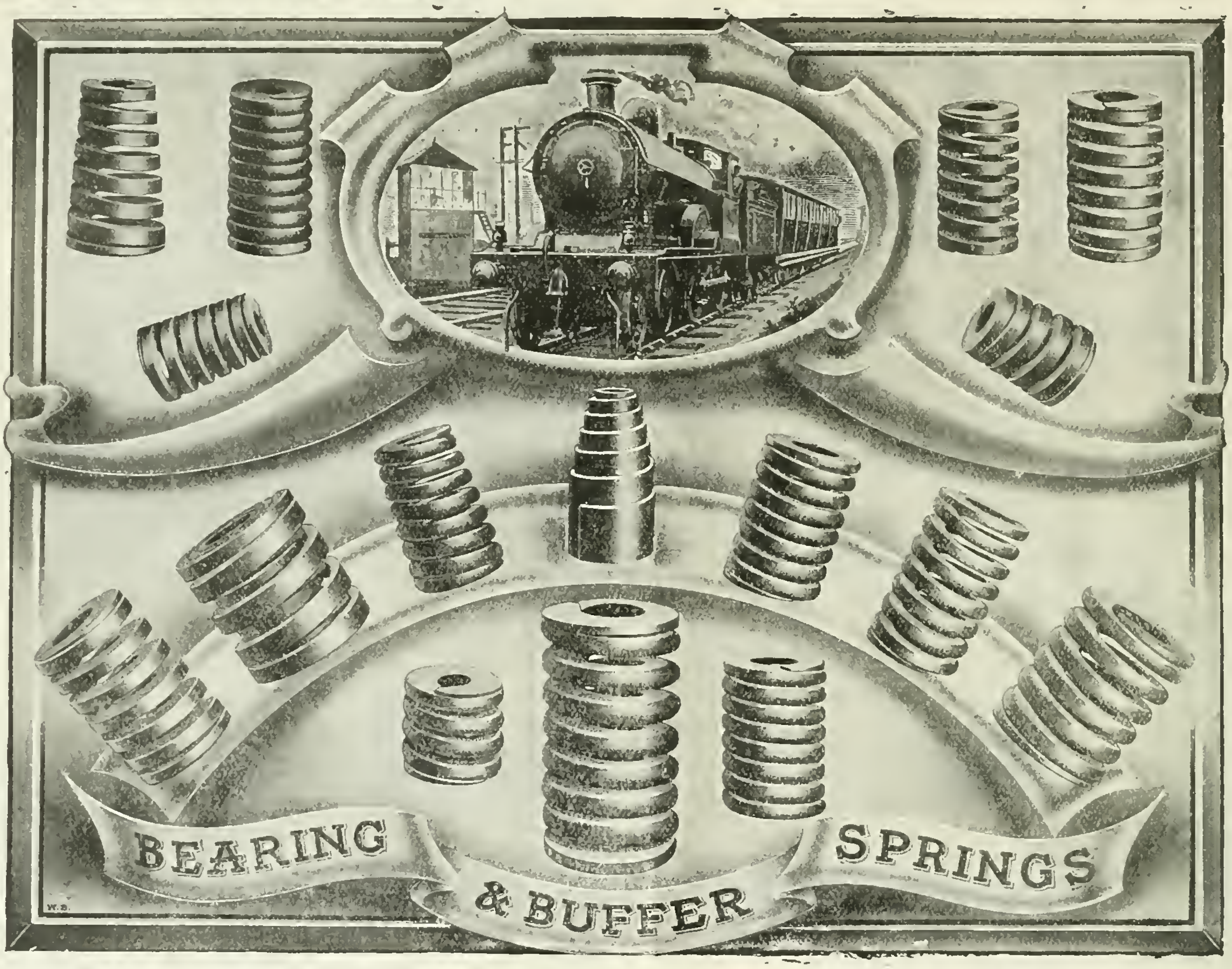
	Fri., 18th.	Sat., 19th.	Mon., 21st.	Tues., 22nd	Wed., 23rd.	Thurs., 24th.
Anglo-Amer. Corp.	34 6	35 0	34 0*	34 0*	33 0*	33 0
Bantjes Cons.	2 3*	2 6*	2 3*	2 6*	2 6	2 9†
Blaauwbosch Dias.	80 0†	80 0†			—	
Brakpan Mines	49 6*		—	50 0*	51 0	—
Breyten Colls.	8 0*	8 0*		8 0*	—	8 0*
Brick and Potter.	—	—	5 6*	3 6*	5 6*	—
British S.A.	—	20 0*	—	—		
Bushveld Tins	1 1*	1 6†	1 0*	1 0*	1 0*	1 0
Cassel Coals	35 0†	—		—		—
Cinderella Cons.	5 0†	5 0†	5 0†	5 0†	5 0†	5 0†
City and Subs.			—	6 0†	6 0†	—
City Deeps	47 0	47 0	46 0*	46 0*	46 0*	47 0†
Clydesdale Colls.	—		—	24 0*	—	—
Con. Investments	25 0		—	25 0*		—
Con. Langlaagtes	—	16 0	—	—		15 0†
Con. Main Reefs	11 9*	11 6*	12 3†	11 9	11 4½	11 7½
Con. Mines Select.	—	23 0†	—	21 0*	—	—
Coronation Frebolds.	1 3*	1 3*	1 3b	1 3*	1 3*	1 3*
Crown Diamonds	8 3	8 0*	8 0*	8 3	7 9*	7 6*
Daggafontein Mines.	9 3	9 3	8 3	8 6	8 3	7 9
Do. Options, 5yrs.	2 0*	1 9	—	—		
East Rand Coals	2 3*	2 4*	2 3*	2 3*	2 4	2 3*
East Rand Deeps	1 0†	1 0†	1 0†	1 0†	1 0†	—
East Rand Props.	6 3*	6 0*	—	6 6	6 0*	5 6*
Eastern Golds	1 0*	1 0*	1 0*	1 0*	1 0	1 0*
Frank Smith Dias.	14 7½	14 3	14 6	14 6	14 0*	13 6
Geduld Props.	38 9*	38 9*	38 6*	38 6*	38 6B	38 0
Ginsbergs		1 0*	—		—	1 0*
Glencairns	1 3*	1 0*	—	—	1 0*	1 0*
Glencoe Colls.			—	—	—	6 0*
Glynn's Lydenburgs	10 0*	11 0*	11 3*	—		
Govt. Areas	86 0	85 3*	86 0	85 0*	85 0*	84 0
Jhb. Bd. of Ex.	37 6*	37 6*	37 6*	37 6*	37 6*	38 0*
Jupiters	2 0*	2 0*	2 0*	2 3*	2 0*	
Klerksdorp Props.	2 0*	2 0*	2 0*	2 0*	2 0*	2 0*
Knight Centrals	3 7	3 6*	3 3	3 3*	3 3*	
Knights Deep			—	—	4 9†	
Lace Props.	9 0*	9 0	9 0*		8 9	8 9
Leeuwpoort Tins	17 0	16 6	16 6*	17 3	17 3*	17 0
Lydenburg Farms	8 0*	8 3†	8 0*	7 11	7 6	7 3*
Meyer and Charl.	—	90 0*	—			—
Modder Easts	24 3	23 6	23 9	23 3*	22 7½	22 3
Modder B's	126 0*	125 0*	122 6*	125 0*	124 0	122 0
Modder Deep	48 9*	48 9	48 6	48 9†	47 6	46 6
Modder Easts	21 3	24 6	23 9	23 3*	22 7½	22 3
Do. Options (3yrs.)	2 0*	1 7	1 6a	1 1*	1 1	0 10*
Do. Options (4yrs.)	7 0	6 3*	6 6	6 8	6 1	5 9
Hume Pipes	22 9*		22 0*	22 6	22 6*	22 6*
Natal Navi. Colls.	21 6*			22 6*		22 6*
National Banks	—	£13¼*	—			
New Boksburgs	1 7*	1 7*	1 9†	1 6*	—	1 9†
New Eland Dias.		75 0a	80 0†	77 6†	75 0†	65 0
New Era Cons.	8 3				—	
New Geduld Deeps	1 7*		1 7*	1 7*	1 7*	—
New Kleinfonteins	7 0*	6 6*	7 0	7 0*	6 7	6 0*
New Modders	70 3*	70 0*	70 6	70 3	70 0	68 6
New State Areas	28 0b	28 0*	27 6a	—	27 0	26 9*
New Unifieds				—	3 6*	
Nourse Mines	8 3		8 9*	8 9*	8 9*	—
Pretoria Cements	109 6	109 0	109 0	107 0*	105 0*	105 0*
Princess Estates	—		0 6*	0 6*	0 6*	0 6*
Rand Nucleus		—	1 3*		1 2*	—
Randfontein Deeps	5 0*	5 3*	5 0*	5 0*	5 0*	6 0†
Randfontein Estate	16 0*	16 0*	—	16 0	16 0*	—
Roberts Victors	17 6†		16 0*	16 6†	15 0*	13 6*
Rooibergs	7 9	7 9*	—		8 0†	8 0†
Roodepoort Uniteds	1 0*	—	—	1 0†	—	—
Ryan Nigels	—	—	3 3*		3 4	3 3*
Simmer Deeps	0 6*	1 0†	—		1 0†	—
S.A. Alkali	21 0*	21 6	20 6*	20 6	20 0*	20 6
S.A. Breweries	—	30 0†				—
S.A. Lands	4 4*	4 3	4 4	4 5	4 3	4 0*
Southern Van Ryn	—	7 3*	—	7 3	7 0	6 6*
Springs Mines	38 9	38 6	38 9	37 9*	36 0	32 6*
Sub Nigels	14 6*	14 6*	11 6*	14 0*	14 0	13 0*
Swaziland Tins	—	10 0*				
Trans. G.M. Est.	11 0†	—			—	11 0†
Transvaal Silver	40 0*	40 0*	40 0*	40 0*	35 0*	40 0†
Do. Options	20 0†	20 0	20 0†	20 0†	20 0†	14 0*
Union 5 per cent.	£98½	£97⅛*	£99	£98½	£99	£98½
Van Ryn Deeps	83 6	84 3	85 0†	84 6†	84 0†	82 0
West Springs	15 0*	15 0*	15 0	14 9*	14 6	13 3*
Western Rand Est.	3 0*	—	—	3 0*	3 0	3 0*
Witbank Colls.	—			—	42 6B	42 6*
Witwatersrands	10 0*	10 0†	11 0*	11 0*		—
Wit. Deeps		—	—		8 6†	8 6†
Wolhuters	3 3*	3 0*	3 0*	3 0*	3 0*	3 0*
Zaaiplaats Tins	7 3	7 2*	7 0*	7 0*	6 9*	6 10*

*Buyers. †Sellers. aOdd lots bEx London.

Deep Mining in Cornwall.

The following statement by Dr. Malcolm Maclaren, in a report made to Messrs. Bewick Moreing and Co., on the central mines of the Camborne-Redruth area, is an important contribution to the problem of the persistence of ore in depth:—"The whole experience so far gained from the deeper workings of the Cornish mines in this neighbourhood points in one direction only, viz., that there is a limit to the depth of tin-ore bodies in the granite. The strongest ore-body ever known in Cornwall, that of Dolcoath, has failed at the 510 fm. level, but the average depth below adit of all the other ore-bodies along the Dolcaoth-Highburrow channel was much less than that of the great Dolcoath ore-shoot. Few of the others reached 360 fathoms below adit; it is true that some were carried below that level, but, with the one exception mentioned (viz., Dolcoath), profitable mining ceased above 360 fathoms. This represents an average depth below the granite-killas contact of some 200 fathoms, and that is, in my opinion, the greatest depth to which we are justified in expecting tin-ore. Should it be obtained at greater depths, it should then be regarded as an unexpected stroke of good fortune. The prime factors governing the deposition of ore, whether tin, wolfram, copper or arsenic, have obviously been temperature and pressure, and the latter is probably of subordinate importance. Hence, in the area under report, it may be assumed that the metalliferous solutions were sufficiently chilled, while yet rising through the upper zone of the granite, to permit of the deposition of the tin and wolfram, but that they were yet hot enough to carry upwards the copper and arsenic minerals until the cold killas abstracted sufficient heat to permit of their deposition in their turn." The feature of tin-mining in Cornwall depends in a great measure on the finding of new ore shoots by lateral development on the lodes now worked, or by cross-cutting from existing workings to other known lodes, some of which in their shallower levels were large copper producers. The work of mining geologists and engineers in the Camborne-Redruth area has indicated the probability that certain mines in this district, which were abandoned when their copper production failed, will be found to be valuable tin producers if developed at a lower level. Witnesses before the Non-Ferrous Mining Committee asked for Government assistance to prove this theory, and develop the new ore bodies, if found.

HOOD WANTS YOUR ORDERS AND ENQUIRIES FOR STEEL SPRINGS



SOLE AGENTS FOR

Messrs. GEORGE CHRISTIE., LTD
GLASGOW.
BATTERY SCREENS & STEEL MESHING

Messrs. JAMES WALKER & CO., LTD
LONDON.
"LION" PACKINGS.
STEAM HAMMER PACKINGS.
"LION" PUMP PACKINGS.

Messrs. JENKINS BROS., LTD.
MONTREAL.
GLOBE VALVES.
GATE VALVES. PUMP VALVES.
96 SHEETING.

THE GARLOCK PACKING CO.
NEW YORK.
SPIRAL PACKING.

C. WHARTON HOOD
& CO., (S.A.), LTD.,

SOUTHERN LIFE BUILDINGS,
HARRISON STREET.

Phone 973. P.O. 6096.
Telegrams : "CASTINGS."

JOHANNESBURG.

IMPORTERS OF

MINING MATERIAL.

ENGINEERS' FURNISHINGS.

GENERAL HARDWARE.

"ANCHOR BRAND"
BRUSHWARE.
STEEL BROOMS.
SHOVELS.
HAMMER HANDLES.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

South African Institution of Engineers.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—I note an error in your report of the proceedings at the inaugural meeting of the Associated Scientific and Technical Societies of South Africa held on Saturday, the 12th instant. In your report you quote me as saying that 237 members (of this Institution) had subscribed £255. This should have read 23 members had subscribed £255. The correction indicates that a substantial figure is sure to be subscribed by the members of the Institution of Engineers. —Yours, etc.,

W. ELSDON-DEW,
President, S.A. Institution of Engineers.

Johannesburg,
19th June, 1920.

American versus British Locomotives.

To the Editor, *S.A. Mining and Engineering Journal*

Sir,—In your last issue you publish a comparison made by a Mr. Lindquist. The comparison is quite correct, excepting that the term "operating conditions" requires to be analysed. Allow me to do so, because locomotives are made to be used, as well as being made for sale. If any boiler will not "keep steam," it affects the "working conditions," and it would be interesting to know why American boilers fail under "working conditions." The finest loco boilers are made in British workshops, and if American boilermakers would "stoop to learn" they might, in time, turn out some satisfactory locomotives.—Yours, etc.,

"BRITISH PRODUCER."

Johannesburg,
23rd June, 1920.

British Income Tax.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—You will doubtless remember that, about two months ago, I informed you of the recommendations of the Royal Commission with respect to taxation of non-residents. It will be of interest to your readers now to learn that, under the Finance Bill of 1920, the allowances, reliefs, and deductions given to residents in the United Kingdom are proposed to be extended to any individual who (a) is a British subject; or (b) is a person who is or has been employed in the service of the Crown, or who is employed in the service of any missionary society or in the service of any native State under the protection of His Majesty; or (c) is resident in the Isle of Man or the Channel Islands; or (d) has previously resided within the United Kingdom and is resident abroad for the sake of health; or (e) is a widow whose late husband was in the service of the Crown; so, however, that no such allowance, deduction, reduction of rate, or relief as aforesaid shall be given so as to reduce the amount of the income tax payable by that individual below an amount which bears the same proportion to the amount which would be payable by him by way of tax if the tax were chargeable on his total income from all sources, including income which is not subject to income tax charged in the United Kingdom, as the amount of the income subject to income tax so charged bears to the amount of his total income from all sources.—Yours, etc.,

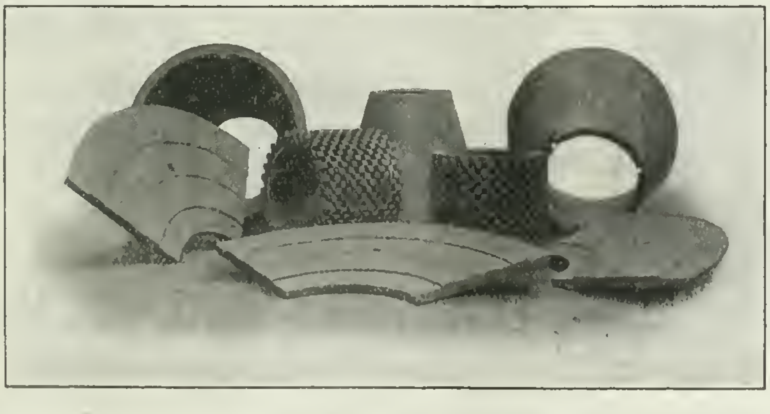
W. R. FAIRBROTHER,
Income Tax Specialist.

67-68, Cheapside, London, E.C.2,
25th May, 1920.

Geology of the Oil Fields of Madagascar.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—South Africa has already spent a respectable sum of money in prospecting the Madagascar oil fields, and this article is written with the sole intention of attracting notice to the various conflicting reports of the existence of anticlines on the field. Anticlines are not necessary to the existence or concentration of oil in large quantities. But where true anticlines exist the work of the geologist in placing boreholes is greatly simplified. One expert who reported for a South African company located borehole sites on several so-called anticlines. I am unaware of the number of holes put down, but there are several, and so far no payable quantity of oil has been found. I pointed out years ago to several interested parties that the existence of these supposed anticlines was more than doubtful. In company with Thos. Draper I visited the bulk of the claims in the Sakalava Valley. It may be mentioned here that the dip of the strata in this valley is very slight, about 3 degrees west, but in many places, from Akavandra north, an easterly dip may be seen, and it is this easterly dip which has deceived people, and has been called anticline. The dip, however, is from 40 degrees to nearly the vertical, while the west dip remains at 3 degrees. In all cases examined by Draper and myself these dips were simply faults of very short length, some as short as 100 metres, and I contend that the men who located anticlines in this region were



Phone 4673. Box 3162.

OSBORN'S
"TITAN" Manganese Castings,
For
Rotary and Jaw Crushers and Mortar Box Liners, etc., and for all parts subjected to severe abrasion.

Samuel Osborn (South Africa), Ltd.,
Sheffield & Johannesburg.

either not geologists or they were in too great a hurry, and to back up my statement I can refer to three well-known French geologists (one of them eminent) who have spent several months examining the region. The first is M. Gautier, who gave a very careful study and wrote a very clear report of the northern part of the oil region in 1899; and I may admit here that I had read this report prior to visiting the fields, so that I cannot take any credit to myself for any discovery, but can only state that what Gautier noticed in the north (the Ambongo region) I confirmed further south, and that is that the strata is faulted but never folded, and therefore no anticlines exist. Since Gautier's visit, the geologist Girod visited the region, and reports the same absence of anticlines. Then we have the report of the geologist and "savant," Perrier de la Bathiè, a gentleman of France, who for sheer love of science has spent years footing it over the west coast of Madagascar, and has examined very carefully the oil regions of Madagascar. He is very emphatic in stating that no anticlines exist in the Sakalava Valley—faults, yes—and he has gone to the trouble of mapping out the lines of fault, consequently his reports on some areas are unfavourable to the finding of oil in quantity, but there are certain areas which are reported favourable. I hope the above will be of interest to South Africans, for most if not all of the borehole sites are located on supposed anticlines, and if the above reports are correct—and I opine they are—then the boreholes are located on faults and there is no chance of finding oil, and the really favourable areas have not yet been touched.—Yours, etc.,

M. CARROLL.

West Rand Geology.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—Touching the first, and important part, of Mr. Kunst's lengthy epistle, published in your last issue, in which he makes the rash statement that "*this time* he really has struck the Main Reef series east of Krugersdorp and trending under the town," kindly allow me also, as a very old geologist in this country, to state positively that such is impossible—even according to his own version. He says that the Government Reef series is only 1,700 ft. away to the north, and what *he* calls the Kimberley series (which is really the Black Reef series of the Black Reef age, on which all the mines out there are working, from Gray's mynpacht to the further end of Randfontein) is only 2,000 ft. to the south. Hence in his 1,700 ft. he has to account to Nature—a serious matter—for the Blue Sky, Van Ryn, and Du Preez series of reefs, as well as a lot of other unpayable ones of our Witwatersrand age—otherwise it is a misdeal. Secondly, on the dip of *his* Main Reef series must come first the Livingstone, then the Bird Reef series, 700 to 800 yards away, and 1,000 yards odd beyond that the *true* Kimberley series, according to Central Rand stratigraphy of 1886. In the name of all that's wicked, how can he squeeze this mile and more of country into his remaining 2,000 ft.?—even though it be out at Krugersdorp, whence much of our "geology *pour rire*" has emanated! Nowhere in the most compact sections of the Rand, Heidelberg, Klerksdorp or Free State, is the Government Reef series to be found within a mile of Main Reef, and the same can be stated of the Kimberley series, overlying it, yet Mr. Kunst deems a total span of 3,700 ft. sufficient for his purpose—in farmed-out country, if you please! The fact is, Krugersdorp can never hope to have our none-too-good Main Reef series anywhere near to it; for the reason that the rich Du Preez, which a blind man can walk on from out Langlaagte Estate on to Reitvlei No. 513, acts as a barbed-wire fence, and keeps it and its near relations in place, as well as giving the lie direct to that artful dodger the supposed "Witpoortje break," invented by certain learned geologists for their purposes, who will die with it written on their—livers! Nature's book of South African geology is incontrovertible if men will but take a delight in reading it aright, and Rand stratigraphy is most simple when you know it—"but you've got to know it first."—Yours, etc.,

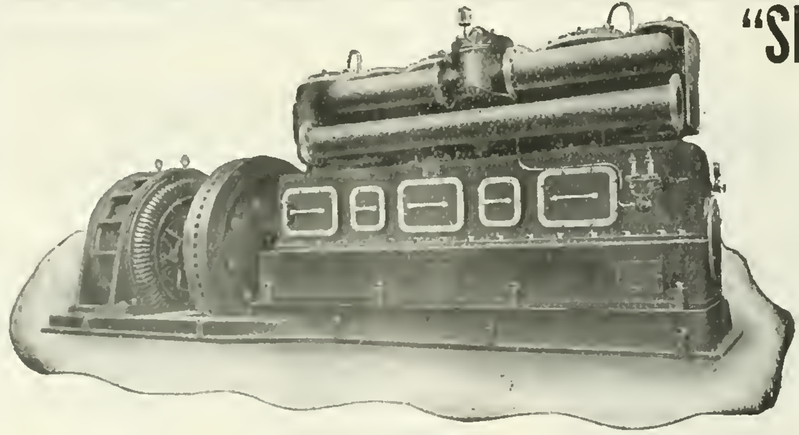
SCOTT ALEXANDER,

Rand Stratigraphist.

Johannesburg,
June 21st, 1920

Important Sale of Mining Machinery in Rhodesia.

We desire to draw attention to an important sale of mining machinery at Gatooma, Rhodesia, to be conducted by Mr. R. W. Albertson, who informs us that the whole of the plant is in good order. The sale is to be held on the Glencairn Mine, starting at 10 a.m. on Wednesday, the 30th June. In addition to the items appearing in the catalogue there will also be sold the whole of the assets of the S. L. Syndicate. There are four boilers, 14, 16, 20 and 25 h.p., a Robey horizontal engine 11¼ x 15, a Marshall 8 x 12, several crushers, and a set of Krum rolls 14 x 24 (new). Geared hoist, Marshall's, 10 x 15; Robey vertical boiler and hoist, 5 x 8 (this is a very useful equipment for either building or mining contractor); Tangye derrick, length of jib 36 ft., pillar 34 ft., capable of taking heavy lifts; 22 tons rails, and several thousands of feet of piping. In addition there are innumerable items that will be of interest and should attract a big attendance. Besides the plant, there are the buildings, all in good order, containing some 15,000 ft. of really good sound C.G. iron in all lengths. We notice that although the whole of the plant is to be sold entirely without reserve the advertisement announces that the mining claims will be "offered" for sale. It is interesting to recall that the Glencairn Mine was the first to win £10,000 worth of gold in one month.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessibility, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Building Still Going Ahead—Government Housing Bill not Sufficient Backing—Commercial Exchange—Electrical Goods—Turpentine, £12 a Case—Building Materials—Currency Question—Iron and Steel.

Notwithstanding the quietness of trade throughout wholesale and retail circles, there is a buoyant feeling as regards buildings in Johannesburg. In this respect there is a little disappointment over the Government Housing Bill, as something very much more than £500.000 was expected. It may be that this is only the thin end of the wedge towards more liberality, when some experience shall have been gained. During the month of May the Johannesburg Municipality approved of plans of new buildings, including alterations and additions, to the value of a quarter of a million pounds. These figures are prodigious, considering the various depressing circumstances, but they are a pointer as to the optimistic feeling prevailing throughout the Witwatersrand. Nothing seems to check our building progress: for example, to-day is the day of residential flats from a speculative point of view. Public buildings are much in evidence. for the Universities, Medical School, and the new Chamber of Mines Buildings have their ground floor window frames already fixed. The price of materials and labour has now become part and parcel of the everyday occurrence. But the grinding of the wheels goes on ever so slowly, as it now takes about twice as long to build a small house as in pre-war days, although the architects have been at work in toning down the more expensive decorations in private houses. Building materials are very scarce and all prices are still increasing, particularly in timber, as the Scandinavian countries have taken full advantage of the demand. There are considerable quantities of timber on the water, but whether this will have the effect of decreasing values is very doubtful, as f.o.b. prices for all timber are considerably higher, therefore the best authorities are not looking for any fall during the present year. As regards galvanised roofing iron showing signs of easing in the Johannesburg market, that is due to merchants having bought too freely, and realising, therefore, any slight drop will soon recover itself, as the landed price here is quite 2d. per foot below what are supposed to be current rates, but these cannot be relied upon when any real buyers come into the market. In fact all quotations are somewhat chimerical for the moment, although the end of June may improve matters.

COMMERCIAL EXCHANGE.

Members are unanimously awaiting news in reference to the report of the Select Committee on the Currency and Exchange question. The American exchange is now practically 4 dollars, and although it is expected to remain about that for some time yet, the tendency to bring down the dollar on account of the low price of silver must of necessity continue, in spite of the so-called gold currency.. America has been buying silver and so steadied the price. However, the value of the rupee has declined, which means cheaper goods from India, Ceylon and Japan. An enthusiastic observer, who always has an eye upon the expansion of Johannesburg, states that the Portuguese East African sugar plantations, which have been in the habit of obtaining supplies from Europe, have now come into the Johannesburg market for lime and coke, as well as their general milling supplies. He maintains that we have as good lime and coke as in any part of the world the latter having prevented the import of coke from England, as now the mines as well as the South African railways use nothing but South African coke. This observer considers there is a grand opening for the manufacturing of iron and steel containers, as well as wooden barrels, for whale oil, treacle, napthalia, beers, wines and other South African produce. Business is very quiet, as the mines are buying very little and there is not much trading between merchant and merchant, as all the world is working towards lower values, and naturally the dearth of business will all tend towards that desideratum. The Johannesburg Economic League is taking up the question of the cost of living which is of more paramount importance than anything else, and now the Profiteering Bill has been promulgated, with a big fine of £5,000 and imprisonment, everything should assist—perhaps not much during the winter months.

BUILDING MATERIALS.

Deals are 2s. 2d to 2s. 6d., but very few are available in Johannesburg. Floorings, 10½d. to 11d.; ceilings, 7½d. The future of the timber trade is very problematical as over purchases may at times

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:

KELLY, BURNIE & CO.

Box 5260. **The "KELCO" People.** Phone 4333.

Corner Polly and Albert Streets, Johannesburg.

ALMOST

2,000 TONS IN STOCK

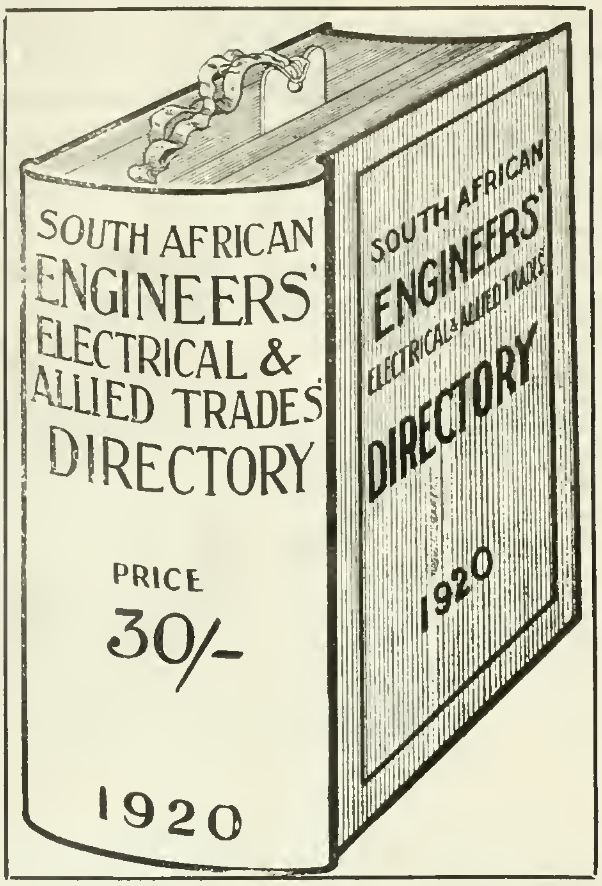
Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.


SOUTH AFRICAN ENGINEERS' ELECTRICAL & ALLIED TRADES DIRECTORY
PRICE 30/-
1920
SOUTH AFRICAN ENGINEERS' ELECTRICAL & ALLIED TRADES DIRECTORY
1920

Just off the Press!

The Book You Have Been Waiting For!

THE ONLY DIRECTORY EMBRACING EVERY BRANCH OF THE ENGINEERING, ELECTRICAL, IRON, STEEL, MACHINERY, HARDWARE AND ALLIED TRADES THROUGHOUT THE UNION OF SOUTH AFRICA, RHODESIA, ETC.

SPECIAL FEATURES:

ALPHABETICAL SECTION.

Gives all the essential particulars of **over 600** firms, including the complete Postal, Telegraphic and Cable Addresses, Telephone Numbers, the names of the partners, if any, the exact nature of the business, list of Branches and of Agencies represented. In the case of Companies, it gives the details of the Capital, names of the Directors and other information necessary to a correct reading of their business position and importance.

GEOGRAPHICAL SECTION.

Shows at a glance the firms engaged in the Engineering, Electrical and Allied Trades in the various towns

OVERSEAS SECTION.

Gives the names of **over 1,000** Manufacturers of Engineering, Electrical, Iron, Steel, Machinery, Hardware and Allied specialities, represented in the Union of South Africa etc., with names of local representatives.

BUYERS' GUIDE.

Provides at a glance a list of the suppliers of all the manifold requirements of the Engineering, Electrical, Constructional, Railway and Mining Material Trades.

MINING SECTION.

This is a Complete Mining Directory in itself, giving a list of all the Mines—Gold, Coal, Diamond and Metal—in the Union and Rhodesia, with full address and names of Managers, Resident Mechanical and Electrical Engineers and other Chief Officials. Also an Alphabetically arranged list of the Chief Mine Officials. Complete list of Mining Concerns in the Union of South Africa and Rhodesia.

GOVERNMENT SECTION.

Complete personnel and addresses of Railways, Department of Mines and Industries, Public Works Departments, Inspectors of Mines, Machinery and Factories, White Labour Departments, Mining Commissioners, etc., throughout the Union and Rhodesia.

MUNICIPAL SECTION.

Names of Town Clerks, Treasurers, Engineers and Electrical Engineers and Managers of Power Supply Stations.

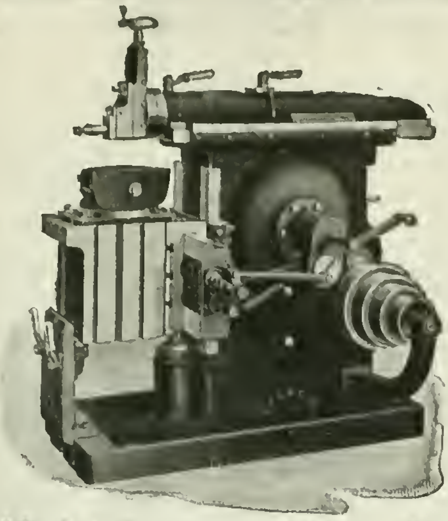
FACTORIES, SUGAR MILLS, TECHNICAL SOCIETIES, Etc., Etc.

Published by the South African Mining and Engineering Journal, 176-180, Stock Exchange Buildings (Telephone 913), Johannesburg.

To the Manager, S.A. Mining and Engineering Journal, Johannesburg.

Please send $\frac{\text{me}}{\text{us}}$ ....cop...... of the S.A. Engineers', Electrical and Allied Trades Directory, for which enclosed find $\frac{\text{Cheque}}{\text{Postal Order}}$ value..........................

Name.. Address..



STEPTOE SHAPERS AND MILLERS

Seventy-five years of experience in the manufacture of high grade machine tools with thousands of our machines in shops all over the world giving daily satisfaction are recommendations that you should not overlook in the selection of your equipment.

Send for a copy of our catalogue showing our entire line of Shapers and Millers, also complete specifications, prices, etc.

Steptoe Shapers can be supplied with cone drive, single pulley drive or motor drive. Each machine before leaving the factory is thoroughly tested by corps of inspectors.

SOLE SOUTH AFRICAN AGENTS FOR
The John Steptoe Co., Cincinnati, Ohio, U.S.A.
BARTLE & COMPANY, LTD.,
P.O. BOX 2466. PHONE 3553. WIRES "FAGGOT."
LOVEDAY HOUSE —— JOHANNESBURG.

bring surplus stocks into the market, but anything of that kind would be only a temporary phase in the upward trend of things. Iron for roofing is 1s. 6d. to 1s. 7d. per foot, according to length. The painting business is very quiet indeed. It is difficult to get turpentine, but one place recently sold some at £12 a case. A case was bought from Capetown at £10 17s. 6d. delivered in Johannesburg, and the turn on that price would mean about £12. It is pretty well certain that there is some on the way from America and should be here shortly at about £8 a case. Linseed raw oil, 115s.; boiled, 120s.; white lead, 110s. and 1s. 3d. lb. Business is on the dull side. Second-hand timber and iron are practically unobtainable and all the yards are very bare of anything like good stuff. For the time being there seems little hope of obtaining fresh supplies.

ELECTRICAL GOODS.

Things are quiet in this market, but prices have, if anything, a tendency to advance. Lamps are 28s. wholesale, and retail 33s. to 36s. a dozen, and it is expected that they will go even higher, as they are still on the scarce side. This is a big advance since the expiry of the lamp trust agreement nearly twelve months ago, when the price receded about 24s. retail. Lamp holders are 18s. to 21s., representing a big rise; adaptors are from 24s. to 27s. wholesale and 2s. 3d. to 2s. 6d. retail; ceiling roses, which are still none too plentiful, are 3s. to 4s.; counter-weights, from 4s. to 6s.; tubing is coming down in price, viz., 30s. to 32s., owing to large stocks on hand and consignments nearly due to arrive. With regard to wiring, contractors are now busy and are getting very good prices, as buildings have, after all, to be finished at long last, and when everything else is fixed up the necessary wiring, even at a very much enhanced cost, is not allowed to stand in the way of completion. Town and country business remains fairly good, although no large outstanding orders are at present going.

THE GOVERNMENT'S MESSAGE TO THE MINE OWNERS AND MEN.

The Minister of Mines stated in the Assembly at Capetown, in reply to a question, that according to his information the Executive of the Mine Workers' Union had refused to accept the proposals of the Chamber of Mines regarding certain re-arrangements of underground work, which proposals tended towards assisting the low-grade mines, in accordance with the suggestions of paragraphs 97 to 102 of the report of the Low Grade Mines Commission. The Minister further stated that the Department had done everything possible to encourage consultation between employers and employes on the mines, and that discussions were proceeding generally in a satisfactory manner. Although it was not considered desirable that the Government should intervene unnecessarily, Government officials were sometimes present at the consultations. The policy of the Department was to encourage self-help and self-determination between employers and employes in all industries, including the mines, with as little official or outside interference as possible. This would enable the Department to intervene effectually in case of a deadlock, if it was somewhat detached from the earlier discussions.

IRON AND STEEL.

Business continues quite fair for bar iron and steel, which is sent to all parts of the Union. Steel plates are scarce; prices remain much about the same as last week. Brass rods, 2s. lb.; ditto sheets, 2s. 6d.; tubing, 3s. 6d.; shafting, 7s. to 7½d.; drill steel, solid, 7½d.; hollow, 1s. 1d.; wire nails, 52s. 6d. to 65s.; shovels, 67s. 6d. a doz. All other quotations are much the same, in fact, business is so quiet that it is difficult to obtain very many quotations.

NEW PUBLICATION.——NOW READY.
TRANSVAAL GOLD LAW
(THIRD EDITION)
By MANFRED NATHAN, K.C., LL.D
30/- Post Free.
HORTORS, LIMITED,
Retail Department: RAND CLUB BUILDINGS,
98, COMMISSIONER STREET, JOHANNESBURG.
Telephone No. 220 Central.
Head Office: LEADER BUILDING, HARRISON STREET.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Phones 2596-7.

Telegrams: "DELTA."

MINES AND MINERALS OF THE S.-W. PROTECTORATE.

Points from the Latest Report of the Administrator—Official Diamond Returns.

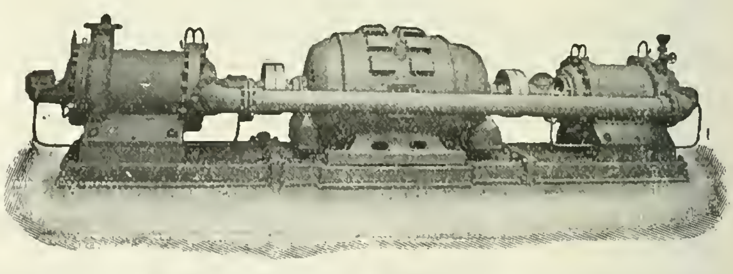
THE mines and minerals of the South-West Protectorate are dealt with by the Administrator in the course of his report for last year as follows:—The output of precious stones and minerals has been as follows: Diamonds, 462,180 carats; stones, per carat, 5·33; estimated value, per carat, 64·9s.; estimated total value, £1,500,000. Copper ore, 26,675 tons; estimated total value, £120,000. Tin, 111 tons; estimated total value, £20,000. The estimated taxation for the calender year is: Diamonds, £475,000; copper, £233; tin, nil; total, £475,233. As tin has only been mined in the area of the Deutsche Kolonial Gesellschaft the tax collected by the Government was, under the German law, the property of the Concessionary Company. The period of our occupation up to the 1st January, 1920, was declared *dies non* with regard to the payment of claim licences except where beneficial occupation has been permitted. The country has now been thrown open to prospecting. Alluvial tin is attracting attention in some of the central districts. Prior to the outbreak of War an amalgamation of the various diamond companies had been contemplated, as it was realised that only by working the fields as one unit could economy be exercised to the full limit. An opportunity was afforded when certain financiers from the Union met the representatives of various diamond companies with a view to forming a consolidated company embracing the main producers. The outcome of the negotiations resulted in the formation of a company registered as the Consolidated Diamond Mines, Ltd., which took over the following companies: (a) Pomona Diamanten Gesellschaft (P.D.G.), (b) Kolonial Bergbau Gesellschaft (K.B.G.), (c) Deutsche Diamanten Gesellschaft (D.D.G.), (d) Diamanten Pacht Gesellschaft (lease only) (D.P.G.), (e) Deutsche Diamanten Gesellschaft's interest in the Halbscheid Gesellschaft, (f) Diamanten Aktien Gesellschaft (including the Neue Hansa Gesellschaft), (g) Vereinigte Diamanten Gesellschaft, Aktiengesellschaft, (h) Bahnfelder Diamanten Gesellschaft (New Consolidated Luderitzbucht Diamond Mines), (i) Luderitzbuchten Elektricitats Gesellschaft (L.E.G.), (j) Grubenbahn Gesellschaft, (k) Deutsche Kolonial Gesellschaft. The rights acquired by the Consolidated Diamond Mines, Ltd., except in the case of the Deutsche Kolonial Gesellschaft were acknowledged by the Government as its interests were not affected thereby. Moreover, it was considered desirable to have the control of the mines in a company registered in the Union. The price paid by the Consolidated Diamond Mines, Ltd., for the German interests amounted to £3,500,000. Unfortunately the various royalties imposed or permitted by the German Government do not at present permit of the fields being worked as one unit. Ultimately, however, a working arrangement will be arrived at whereby the economy aimed at by the consolidation may be attained. In accordance with decisions arrived at at meetings held in Capetown and Pretoria towards the end of the year the South-West Africa producers have been allocated 21 per cent. of the £12,000,000 worth of diamonds, which the four big producers, viz., the De Beers, Premier, Jagersfontein and South-West Africa have arranged with the London Diamond Syndicate to place upon the market during 1920. The demand, however, for diamonds has increased to such an extent since the above arrangement was arrived at that the Syndicate has suggested raising the volume of trade. The additional sales will cause an appreciable increase to revenue as the existing plants on the fields are not being worked to their full capacity owing to the limitation of production; in consequence of which further production can be made at small expense through the overhead charges remaining unaltered. The effect to revenue can be readily understood, as the Government pays 70 per cent. of the working costs and receives 66 per cent. of the proceeds of sales. During the year of 1919 the following companies produced: P.D.G., 187,963·700 metric carats; K.B.G., 110,040·900; D.D.G., 73,188·400; Kolmans Kop Diamond Mines, Ltd., 43,684·500; Vereinigte Diamant Gesellschaft, 24,262·200; Diamanten Aktien Gesellschaft, 9,696·275; Diamanten Abbau Gesellschaft, 7,816·300; Luderitzbucht Bergbau Gesellschaft (January to April), 1,149·350; South-West Diamonds, Ltd., 3,284·075; Bahnfelder Diamant Gesellschaft (January to May), 966·000; Luderitzbucht Consolidierte Diamant, 128·800; total, 462,180·500 metric carats. The output exceeds that of 1918 by 90,000 carats. The estimated value for the year amounts to £1,500,000. The average number of stones to the carat is 5·33 as compared with 6·02 for 1918. The sum of £450,835 was advanced to the producers on the year's output, which sum includes interest charged by the Banks to the 31st October, 1919, amounting to £7,781: The revenue from the diamond tax in 1918, which was assessed in December, amounts to £363,471.

MINES DEPT. EXAMS.—Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record* In January-May, 1920, we secured 19 out of 30 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

THE FAR EAST RAND SYNCLINE: MR. G. A. DENNY'S VIEWS.

In his report on the Far East Rand, Mr G A Denny, M I.M E., A.M.I.C.E., writes:

The disposition of the payable gold in the Far East Rand syncline is notoriously in patches of greater or lesser extent, which effect a rough orientation in the parts in which they are most extensive or most numerous.

If the syncline be considered as a whole with respect to the disposition of the payable gold patches, the point of origin or departure of any particular string of patches which may exist in the more central portion of the syncline, say in the Springs mines, could not be determined with any certainty. The origin or outcrop of the reef in the property last named can with equal force be laid at any part of the rim or shore line with Van Ryn to the Nigel. A study of the results obtained from shafts and boreholes along the eastern rim of the syncline shows that fewer patches have been located in those sections, whether the reef formation occurs as an outcrop or as a sub-outcrop, than in those nearer the centre of the syncline. Examination of the details of borings indicates that the stratigraphical elements are much thinner in the rim sections, with the possible exception of the Kimberley reef. The disposition of the gold patches relatively to the rim and the deeper reef positions, suggests the idea that they have been deposited in a pre-existing depression, in which the tendency has been to concentrate the largest patches and highest values towards the deeper zones. The rim or shore line of the depression has received in general a lighter deposit both of reef matrix and gold. Consequently, between such shore line enrichments as the Van Ryn on the north and the Nigel on the south of the depression, there are—as in the north-eastern and eastern sections—long stretches in which no very encouraging reef patches have been found. The distance to which this impoverished shore line zone will extend in any particular region cannot be stated with any confidence. A safe generalisation is to assume that the chances of encountering the larger and richer gold patches in any property which embraces a section of the eastern shore line of the depression as far south at Heidelberg, are better in the deeper than the shallower zones, and that all properties within a line drawn from Heidelberg to Modderfontein, which have a sufficient mining area on the reef, at such a distance from the shore line as will give working depths of 2,000 feet and upwards, seem certain to find—as far as there is certainty in such things—the average conditions respecting gold distribution approximating to those that have been found by the producing mines in the particular vicinity.

Thus far the development in the Nigel District, outside of the Nigel Mine proper and the Sub-Nigel Mine, has been confined to innumerable shallow workings along the shore line of the depression, or in the part which seems most likely to offer the best conditions for the occurrence of payable gold concentrations.

The explorations of the Nigel and Sub-Nigel Companies cover approximately 8,000 to 10,000 ft. on the strike of the reef, and 7,000 to 8,000 ft. on the dip.

The Nigel Mine workings lie wholly within a zone between the reef outcrop and a length of 3,500 ft. measured on the plane of the reef, and an outside vertical depth of about 1,000 ft. The Sub-Nigel workings are an extension of those of the Nigel Mine in depth, and lie wholly within a reef zone having a depth ranging between 1,000 and 2,000 ft. vertically from the surface.

The disposition of the gold in the Nigel Mine was more or less regular, in the form of separate elongated patches, with their longest axes pointing to the north-west. These ore shoots covered in all some 33 per cent. of the total area developed, and produced rather more than 2,000,000 tons of ore, equal to approximately 15,000 tons per productive claim.

The Sub-Nigel Company, on account of faults and dykes which have adversely affected the tonnage development, may mine a lower tonnage per productive claim than the Nigel Company. If the workings should emerge from the zone which has handicapped it in the past in this respect, it will undoubtedly make a very material difference to the ore reserves position, and to the cost of development.

The comparative poverty of the rim of the depression is well illustrated by the history of the companies on the northern side of the syncline.

The properties embraced within the Modder East Company were originally developed by two companies—namely, the Cloverfield and the Rand Klip companies.

In all these two companies did 10,370 ft. of development; expended in all £600,000; and, as a net result, failed to disclose any ore which should be regarded as payable to-day. More extensive development on the part of the Modder East Company., especially in the deeper ground, has enabled it to declare ore reserves approaching 1,000,000 tons, having a value of 8 dwt. or upwards on stoping width of 56 in.

The Modder "B" development in the shallower levels during the year March, 1909-1910, amounted to 6,755 ft. The average width of the reef exposed was 12·72 in., and the assay value 25·6 dwt., equivalent to 5·4 dwt. on the average width stoped in 1918.

The early development of the Government Areas, as given in evidence before the State Mining Commission in 1916 by the Company's consulting engineer, forcibly illustrates the necessity for large mining areas and unbounded confidence in the exploitation of the gold deposits in the Far East Rand syncline. At the end of 1913 the expenditure on development, shaft sinking, equipment, etc., amounted to £1,068,000 Apart from the four vertical shafts, a total of 29,737 ft. of underground development had been accomplished. About 500,000 tons of ore, worth 22s. 6d. per ton, had been developed, from which very little profit could be expected. The percentage of payability (even at so low a value as 22s. 6d. per ton) was only 43 per cent. The whole length between the northern shafts, a distance of some 3,000 ft., was unpayable. After development had advanced to wider and deeper reef horizons, this Company was able to declare its ore reserves, as at the end of 1918, at over 9,000,000 tons, assaying 8 dwt. on a width of 78 in.

A study of the returns made by the producing companies working the deeper horizons of the syncline as a whole, shows that the development of the mines has extended to wider and wider range so pari passu the yield of gold both per ton and in the aggregate has also increased

Vickers' Prospects.

In the course of his speech to shareholders in Vickers, Ltd., in mail week, Mr. Douglas Vickers gave a very interesting review of the big company's position in the transition stage from war to peace. He mentioned, for instance, that whereas at the height of the War the firm's employees rose to as high as 107,000, including those engaged at the Wolseley motor works, they now numbered 44,000, of whom 3,600 were women, though those figures did not include employees of the Metropolitan Carriage, Wagon and Finance Company, Taylor Brothers, Glovers, or the Metropolitan-Vickers Electrical Company, Ltd. Speaking of Vickers' purchase of the Metropolitan Wagon concern, the chairman explained that as a result of that development the British Westinghouse Company passed under the control of Vickers, and for certain reasons was changed in name to the Metropolitan-Vickers Electrical Company. That control came to them with its connections in France and Italy, and although the name was changed, the American Westinghouse Company continued on the most intimate and friendly relations, whilst further connections had been made with Brown, Boveri & Co., the well-known Swiss electrical concern. "With this combination," said Mr. Douglas Vickers, "we shall have the benefit of a world-wide experience in the design of a large range of materials which have been proved to suit both European practice and that of other countries." Mr. Vickers spoke very optimistically of the state of the order books at all the firm's various works and companies, but added that, taking the year as a whole, it had been one of extreme difficulty, due to changes in trade, shortage of material, reduction in working hours, and repeated increases in wages. For a long time customers had held off, thinking prices would go down, and they were late in realising that there was no prospect of that for some time to come. Manufacturers, too, were unable to quote firm prices for work of any magnitude owing to the continued rises of wages and materials. Mr. Vickers says he believes there is a marked improvement in the spirit of workers.

SPECIAL MACHINERY,
TOOLS, APPLIANCES
and EQUIPMENT
MANUFACTURED TO CUSTOMERS' REQUIREMENTS.

Accuracy and quick delivery guaranteed.

Enfield Machine & Auto Tool Co., Ltd.,
ENFIELD, MIDDLESEX, ENGLAND.

Leeuwpoort (African Farms) Tin Mines, Limited.

(Incorporated in the Transvaal.)

DIRECTORS' EIGHTH ANNUAL REPORT.

(Year ended 31st December, 1919).

Submitted at the Eighth Annual General Meeting of Shareholders held in the Board Room, the Jeppe Arcade, Johannesburg, on Wednesday, 23rd June, 1920, at 10.30 a.m.

To the Shareholders,

Leeuwpoort (African Farms) Tin Mines, Ltd.

Gentlemen,—Your Directors beg to submit their Eighth Report on the Affairs of the Company, with the Auditors' Report and Financial Statements, for the year ended 31st December, 1919.

REGISTRATION.—Your Company was registered under the Limited Liability Laws of the Transvaal on 18th April, 1912.

CAPITAL.—The Capital of your Company is £275,000 in 275,000 shares of £1 each, all issued.

PROPERTY.—The property of your Company consists of :—(a) Freehold Farm Leeuwpoort No. 2415, Waterberg, of an area of 3,962 morgen 255 square roods, being the entire farm. (b) Mineral rights over portion, 1,099 morgen 84 square roods, of the Farm Rietfontein No. 2414, Waterberg, adjoining Leeuwpoort.

OPERATIONS.—The Report of Mr. J. Irvine Jameson (Mine Manager) is attached, and gives a *résumé* of the operations conducted on your mines during the year. The following figures give the results to the end of the year (31st December, 1919) :—

Mill : 17 stamps (2 Nissen and 15 Californian) ran 312.38 days.
2 tube mills ran 222.21 days.
Ore milled, 48,990 short tons.
Tons per diem run, 156.83 short tons.
Duty per stamp per diem, 9.225 short tons.
Concentrates won, 871 long tons.
Average grade of concentrates, 61.71 per cent. M.T.
Average grade of ore treated (pulp samplings), 2.02 per cent. M.T.

In addition to the above mentioned 871 tons of concentrates produced, there were approximately 6,687 short tons of low grade partly treated concentrates requiring further treatment of a value of approximately 2.7 per cent. metallic tin—equivalent to, say, 260 long tons of finished concentrates of value of 62 per cent. metallic tin.

FINANCIAL.

Balance at Appropriation Account at 31st December, 1918	£16,619 12 10
Working Revenue and Expenditure Account shows a profit for the year ended 31st December, 1919, of	24,601 5 3
Sundry Revenue and Rents	744 1 10
	£41,964 19 11
Less Development and Depreciation written off, £22,519 10s. 4d. Less Interest, etc., £4,171 7s. 6d.	26,690 17 10
Balance at Appropriation Account at 31st December, 1919	£15,274 2 1

BUILDINGS.—This Account shows an increase of £2,227 2s. 8d., after allowing for Depreciation written off.

MACHINERY, PLANT & EQUIPMENT.—This Account now stands at £102,663 17s. 10d., after writing off Smelting Works, which stood at £3,654 15s. 2d., thus showing a total expenditure for the year of £8,950 17s.

DEVELOPMENT.—The total of 5,665 feet of development and exploratory work was accomplished during the year and the whole of Development Account has now been written off.

SMELTERS.—The plant has been closed down for the time being, but is kept ready to be put in commission at any moment.

ORE RESERVES.—The summary of ore reserves shows a total of 66,251 short tons, containing 2.22 per cent. metallic tin

WATER SUPPLY.—The water supply has been ample for all requirements in every way.

MANAGEMENT.—The Directors have pleasure in again recording their appreciation of the energy and ability displayed by the Mine Manager (Mr. J. Irvine Jameson) and his staff.

DIRECTORATE.—You are asked to elect two Directors in the place of Messrs. W. J. Gau and B. Southwell, who retire in accordance with the provisions of the Articles of Association, but are eligible for reelection.

AUDITORS.—You are asked to appoint Auditors for the ensuing year in the places of Mr. Alfred E. A. Williamson and Messrs. Fraser and Mackenie (who are eligible and offer themselves) and to fix their remuneration for the audit just closed.

We are, Gentlemen,

Yours obediently,

JUL. JEPPE (Chairman),
E. M. HIND,
A. G. GILL,
W. J. GAU,
B. SOUTHWELL, Directors.

A. WOODROW,
(for the South African Townships, Mining & Finance Corporation, Limited, Secretaries).

Johannesburg, 26th April, 1920.

Dr. Profit & Loss Account for Year ended 31st December, 1919. Cr.

Dr.		Cr.	
To Depreciation on Buildings, Furniture, Livestock, Vehicles, etc. .	£3,044 16 7	By Balance brought down from Working Revenue and Expenditure Account	£24,601 5 3
,, Income Tax (South Africa), Additional Tax year ended 31st December, 1918	21 10 0	,, Dividend Tax (South Africa)—Amount overpaid	144 1 10
,, Interest Account	4,149 17 6	,, Rents Account	600 0 0
,, Balance carried to Appropriation Account	18,129 3 0		
	£25,345 7 1		£25,345 7 1

Leeuwpoort (African Farms) Tin Mines, Limited—continued.

Dr. Balance Sheet, at 31st December, 1919. Cr.

Capital	£275,000	0	0
Authorised : Issued in 275,000 Shares of £1 each.			
Sundry Creditors	93,959	9	3
Balance of Appropriation Account	15,274	2	1
Contingent Liability—Uncalled Capital on 92 Shares, Rand Mutual Assurance Company, Limited, £736 0s. 0d.			
	£384,233	11	4

Property	£144,562	14	9
Freehold of Farm Leeuwpoort, No. 2415, District Waterberg 3,962 morgen 255 square roods.			
Mineral rights on certain portion of Farm Rietfontein No. 2414, in extent 1,099 morgen 84 square roods, adjoining Leeuwpoort.			
Shafts	21,587	16	3
Development	Nil.		
Machinery, Plant and Equipment	102,663	17	10
Headgears	580	5	1
Buildings	19,977	12	9
Furniture and Office Equipment	279	8	7
Livestock, Vehicles and Harness	1,091	14	3
Mine Stores on Hand	13,352	0	10
Shares Account	258	14	3
92 Shares, Rand Mutual Assurance Co., Ltd., of £10 each, £2 paid up.			
Tin in Transit and on Hand	77,308	19	3
Sundry Debtors	1,742	5	9
Payments in Advance	14	11	0
Cash Account	813	10	9
Cash at Mine			
	£384,233	11	4

Dr. Working Revenue and Expenditure Account for Year ended 31st Dec., 1919. Cr.

To Mine Development Redemption	£9,798	0	0
,, Mining	23,337	10	8
,, Transport of Ore	1,756	11	11
,, Sorting and Crushing	2,642	8	4
,, Milling and Concentrating	35,783	1	11
,, Drying and Bagging	1,932	7	5
,, General Charges at Mine	9,965	11	10
,, General Charges (Head and London Offices)	3,128	14	8
,, Realisation Charges	13,264	18	8
,, Realisation Charges (Smelting Works)	7,000	0	0
,, Alluvial	159	6	9
	£108,768	12	2
,, Balance Carried Down	24,601	5	3
	£133,369	17	5

By Tin Account	£133,369	17	5
	£133,369	17	5

Dr. Appropriation Account. Cr.

To Machinery and Plant—Cost Smelting Works written off	£3,654	15	2
,, Development Account	15,819	18	7
,, Balance	15,274	2	1
	£34,748	15	10

By Balance at 31st December, 1918	£16,619	12	10
,, Balance brought down from Profit and Loss Account	18,129	3	0
	£34,748	15	10

A. WOODROW
(for the South African Townships, M. & F. Corp., Ltd., Secretaries).

JUL. JEPPE, Chairman.
W. J. GAU, Director.

To the Shareholders,
Leeuwpoort (African Farms) Tin Mines, Ltd.

We have audited the Books and Accounts of the Company for the year ended 31st December, 1919, and have to report that we have obtained all the information and explanations we have required. We certify that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Company's affairs according to the best of our information and the explanations given to us, and as shown by the Books of the Company.

FRASER & MACKENZIE,
Registered Public Accountants.
ALFRED E. A. WILLIAMSON,
Incorporated Accountant (Vict.).
Auditors.

Johannesburg, 30th March, 1920.

The Week's Meetings.

CITY DEEP, LTD.

The annual general meeting of the City Deep, Ltd., was held on June 18, in the board-room, Corner House, Mr. J R. Leisk, C.M.G., presiding.

The chairman said that if they made full allowance for all the adverse conditions that obtained during last year they had every reason for congratulating themselves upon the results of the company's operations as reflected in the reports and accounts to December 31, 1919. The shortage of native labour had continued, during 1919, to occasion considerable embarrassment; and the decrease of some 52 000 tons in the amount of ore crushed was due entirely to the insufficiency of native labour. Since the beginning of the current year there had been a marked improvement in the supply. The mine, in common with almost all other industrial enterprises throughout the world, had to provide for a substantial increase in working expenditure. This additional cost, on balance, amounted for 1919 to £30,000.

These additional charges occasioned an increase from 24s. 8d. to 27s. 9d. in the working costs. Bearing in mind the decrease in tonnage milled—the figures for 1919 and 1918 were 618,000 and 670,000 respectively—it was gratifying to find that the working profits for the year 1919 exceeded those of the preceding twelve months by roughly £10,000. The factor which, notwithstanding these adverse conditions, accounted for this increase, was, of course, the premium on gold.

Taking gold, for purposes of comparison, at standard price, the yield per ton during 1919 at 38s. 3d. was slightly in excess of the yield for the previous year. In point of fact, since the mine started milling, the yield had been unusually consistent. It was true that in the year 1917 the average yield was 39s. 6d. per ton, but in the chairman's speech two years ago he emphasised the fact that this was a figure somewhat higher than was justified by the ore reserves; and he foreshadowed the return sooner or later to a grade more in keeping with the average value of these reserves. His remarks applied with equal force today. It might even be contended and with considerable force that a grade of 38s. 3d. was still slightly higher than was justified by the general conditions of the mine.

On May 1 last the City Deep, Ltd., under provisional agreement with the City and Suburban Gold Mining and Estate Co., Ltd., took over the working of the City and Suburban Mine. This had involved a fusion of operations to a very considerable extent, and consequently an element of difficulty had been introduced in comparing present-day expenditure with the costs of any period prior to May 1. Taking, however, the results for the period January-April, 1920, the City Deep milled 226,000 tons as compared with 225,000 tons during the preceding period of four months, and with 184,000 tons during the corresponding period of last year. The conclusions to be drawn from the results of the first four months of 1920 were that working costs still showed an upward tendency, and that this factor was accentuated by the fall in the gold premium. On the other hand the native labour position was greatly improved, and there were indications that the improvement would be maintained. If this anticipation proved correct the effect upon the City Deep output, and incidentally upon profits, should be very considerable.

In anticipation of ratification by the shareholders of both companies, the City Deep had assumed responsibility as from May 1 last for the conduct of operations on the City and Suburban Mine. It was too early to give any reliable indication of the effect of this purchase upon City Deep profits, but the directors were confident that the transaction would prove of benefit to the City Deep. Arrangement were in hand for dealing with the water which would flow into the City Deep from the adjoining outcrop mines when the latter closed down. The directors had declared a dividend of 12½ per cent., which compared with 10 per cent. for the corresponding period of last year.

The report and accounts were adopted.

ROBINSON G.M. CO.

The annual general meeting of the Robinson Gold Mining Co., Ltd., was held on June 18, in the board-room, Corner House, Mr. F. Raleigh presiding.

The chairman reminded shareholders that at their last annual meeting he stated that it was unfortunate for this company that towards the end of its career such high costs should exist as to make it impossible to mine much of the large tonnage of low grade ore developed and remaining in the mine which under more normal conditions would have been mined at a profit. Whilst the working costs had, during the past year, shown a further rise of 1s. 4d. per ton, they had been fortunate enough to receive an increased price for all gold produced from about the middle of July of last year, and this so-called gold premium was equal to an additional revenue of 2s. 3d. per ton for last year. The net result of the year's operations was an improvement in the profit of 8d. per ton, and although there was a decrease in the tonnage milled of 22,300 tons, there was an increase in the working profit earned of £12,277. After taking into account interest and exchange, dividends on Crown Mines shares and other revenue, less donations, expenditure in connection with ore purchased, etc., the working profit was increased to £88,986

The total working expenditure showed an increase of £9,448, which was more than accounted for by the increased cost of white wages, which alone amounted to £15,260 for the year. Considering the advance which had also occurred in the cost of stores and supplies great credit was due to the management that the total expenditure had not been higher. They again suffered from the prevailing shortage of native labour which restricted the tonnage output. The consulting engineer estimated the remaining tonnage of leader and south reef at 229,400 tons, or a decrease of only 92,600 tons as compared with the estimate made at the end of the previous year. As regards the Main Reef there was more than enough available to provide the necessary make-up tonnage required, whilst Leader and South Reef ore was being mined. Even at this stage in the history of the mine areas of reef are still being found in faulted ground, and only this month a stretch of what it was believed would turn out to be payable South Reef had been located by diamond drilling where the strata was heavily faulted, though the tonnage of these finds could not be expected to be large, any payable stretches found had the merit of giving extra working faces and often favourably affected the grade of ore mined.

The operations for the first five months of the current year showed that an average monthly tonnage of 38,860 was milled. Working costs had risen by 1s. 5d. per ton as compared with those of last year; the premium on gold was estimated at an average figure equal to 3s. 10. per ton or a total of £37,908. The working profit, however, was only £15,343 and it was, therefore, evident that the mine was wholly dependent upon the gold premium for any profit whilst working costs remain at their present high level.

Assuming all the essential factors remained as they existed to-day, the mine should be able to put out 40,000 tons per month, and earn monthly profits to the end of this year.

The Robinson was an outstanding example of the loss suffered by the community owing to the present high range of costs. There were many hundreds of thousands of tons of main reef still open and accessible which in normal times could be classed as payable but with prevailing costs could not be worked without loss. The profits which would have been derived from this tonnage by shareholder's might certainly have been small, but the indirect good to the community through the mine continuing to work for a number of years longer would have been great; this, however, was, now unlikely of attainment. A dividend of 1 per cent. had been declared by the Board for the current half-year, ending June 30, 1820.

The report and accounts were adopted.

ROSE DEEP.

WORKING PROFIT: £198,149.

The annual meeting of the Rose Deep, Ltd., was held at the board room, Corner House, on June 18, Mr. F. Raleigh presiding.

The Chairman, in moving the adoption of the report and accounts, said that the working profit for the year was £198,149. After paying Government and Provincial taxes, £27,531, providing for two dividends totalling 25 per cent., there remained £134,886 with which to start the current year. Of this £75,630 was represented by cash and investments after allowing for all liabilities and the balance was invested in stores, shares in co-operative concerns and debtors. Available cash showed an increase of £25,600, due chiefly to the reduction which has been made in the amount of stores and materials carried in stock.

Reviewing the operations of last year, he said the working profits, based on the standard price of gold, amounted to £126,834, or 4s. 2d. per ton; this was a decrease of £12,979 when compared with the previous year, and was brought about by a decrease in the tonnage milled of 12,000 tons, an increase in the working costs of 8d. per ton, against which there was an increase in the value of the yield of 4d. per ton based on the standard price of gold. The amount of premium on gold estimated to be received was £71,315, thus raising the total working profits up to £128,149 or an increase of £58,336 in the company's working profits results when comparing 1919 with 1918.

The native labour supply continued to be inadequate throughout the year, which accounted for the further falling off in the tonnage milled. The total working expenditure showed an increase of £10,224, which was more than accounted for by the increased cost of white labour, which alone amounted to £12,659. Contributing the large increase which had also taken place in the cost of stores and supplies, credit was due to the management that the total expenditure had not been higher.

The development footage accomplished was equal to that of 1918, and the payable ore developed amounted to 222,930 tons for the year, of a value of 6.2 dwt., which is above the average value of the ore reserves.

The report was adopted.

DURBAN ROODEPOORT DEEP.

The annual meeting of the Durban-Roodepoort Deep, Limited, was held on June 17, in the board room, Corner House, Mr. F. Raleigh presiding.

The chairman said that in 1918 they embarked upon a southern shaft sinking scheme consequent on the consulting engineer's advice that the existing shafts could not be relied upon to work out the mine and to the fact that their increasing maintenance cost was the greatest handicap to economical working. Profits for the three years ended December 31, 1917, had averaged £4,000 per month, during which period shareholders had been paid dividends equal to 5 per cent per annum, and, in addition, the company had increased its cash and cash assets by £47,700. Although the profits had fallen to about £3,000 for the first five months of 1918, largely due to abnormal stormwater troubles, there was no reason to suppose that the company could not at least get back to its former profit average of £4,000 per month. Arrangements were made with their largest shareholders, the Central Mining and Investment Corporation, Limited, and the Rand Mines, Limited, for the financing of the proposed capital expenditure. Following this the terrible influenza epidemic broke out with disastrous results to this and other companies, causing loss of native labour and increased expenses. However, the company earned £30,000 during 1918, notwithstanding increased costs due to the war.

Just after the last annual meeting heavy falls of rock and movement of ground took place in No. 1 shaft, the main hauling shaft. Extensive repairs had to be made necessitating the shaft being out of commission for nearly a month, with the result that losses were made for June and July of last year totalling £30,857, which in view of the financial position was most discouraging. About this time the gold premium arrived, and the board was encouraged to continue its programme in the hope that the relief thus afforded would offset the additional burdens of expense in connection with labour and stores, which burdens were commencing to accumulate with alarming rapidity. Since the close of the past year there had been a further substantial rise in white wages and in stores. During last month the management, after consultation with their employes, dispensed with over 40 Europeans. The men and their representatives fully realised that unless some profit was earned the board could not finance the capital programme, and, they had quite fairly met the management.. Owing to the recent decisions to close the Princess Company's mine on the western boundary and the Roodepoort United mine on the eastern boundary, they would have sooner or later to face the pumping of water making in these two mines. This coming on the top of shaft troubles and the increased working costs made the company's position more precarious than ever. The amount of additional water to be pumped was estimated at a maximum of 21 and a minimum of 14 million gallons per month, entailing an additional monthly cost for pumping of about £2,500, and a capital outlay on pumping plant of about £20,000 and frankly, to-day, he could not see how the company can possibly survive this additional burden. They had made representations to the Government Mining Engineer that some relief should be afforded to enable the company to keep the only surviving mine of the Roodepoort district alive by means of a subsidy for pumping the district water, but they knew how unsympathetically an appeal of this nature upon the Union Government Treasury was likely to be met, and he feared that the Roodepoort district water would be the last straw as regards that company.

The report and accounts were adopted.

MODDER B.

The annual meeting of the Modderfontein B Gold Mines, Ltd., was held on June 18 in the board-room, Corner House, Mr. J. R. Leisk presiding. The Chairman said that the operations for the year were the most successful of any in the mine's history. The tonnage output was higher by 44,000 tons, and the yield greater by nearly £321,000 than in any previous year. Of this increased yield, roughly £151,000 was due to the higher price realised for the output during the latter part of the year. Working expenditure, on the other hand, exceeded by some £132,000 the expenditure of 1918, and amonnted to 22s. 5d per ton milled as compared with 19s. 8d. for the preceding year. Even calculating gold at the standard value, the working profit increased by roughly £37,000, notwithstanding the abnormal costs of production. The total working profit for the year was £846,657, which was increased by some £34,000 from various subsidiary sources. The payable ore reserves at the end of December last aggregated 3,215,100 tons, of an average value of 9 dwts., a relatively small decrease under both heads as compared with the previous year. Significance attaches to these decreases. An important feature of the year's development operations was the very favourable conditions indicated by the Geduld drive in the extreme south-east corner of the property. In the upper eastern section, the relatively small amount of work was explained by the fact that in this region they had experienced some difficulty due to faulting and generally disturbed geological conditions. These conditions, however, might be quite local, and there were no grounds for concluding that this important undeveloped area did not contain good ore bodies. As regards the western area, the main point was that for the next few years and owing to the reduced tonnage from the east side of the property, this section of the mine would be required to provide the greater portion of the ore for the mill. Accordingly, it become necessary to enlarge the scale of operations in the western area and with this object in view, the very large blocks of ore that had been opened up on broad lines in preceding years had been divided up by detail development in order to increase substantially the tonnage from this very important area. The detailed development had fully maintained the original favourable indications.

The additional compressor plant was ordered in 1916. It had not even yet been delivered. As the delay was having serious consequences the board decided to acquire from the Victoria Falls Power Company the plant which had now been brought into operation. The additional supply of compressed air now available had important results. It had enabled the management to discontinue stoping in two shifts. Moreover, it would be possible to increase very considerably the number of rock drills at work in the mine, with effects upon the tonnage milled that could readily be appreciated. Fifteen additional machines had already been put into commission. The meetings to authorise the splitting of the shares of the company into shares of the nominal value of 5s. each would be held in September next. Due notice of these meetings would be given. The directors had declared a dividend of 32½ per cent. for the half year ending June 30. Shaft sinking and development work had proceeded energetically at the Modderfontein East, Ltd., in which the company was interested as shareholders.

The report and accounts were adopted.

GELDENHUIS DEEP LTD.

In the course of his remarks, Mr. Max Honnet, presiding at the annual meeting of the Geldenhuis Deep, Limited, held on June 22, in the place of the chairman, Mr. A. F. Mullins, who was serving on the jury, described the company as the pioneer of deep level mining on the Rand. Crushing was commenced practically 25 years ago, and with the large mining area held, which, as the result of amalgamations, included the Jumpers Deep and Geldenhuis Estate claims, its workings were extremely scattered, and its equipment, though still satisfactory, was far from new. Nevertheless the chairman took occasion to congratulate the West Section on its nil return for deaths by accidents and, in this connection, on winning the shield for the best returns on the Reef.

As against £1,208 made in 1918, the working profit for the past year was £55,402, the improvement being entirely due to the gold premium received on all gold produced since the middle of July last. Without the gold premium no profit would have been earned during the last year.

During 1919, 560,100 tons were milled, being 31,000 tons less than in the previous year. The revenue obtained therefrom, including the gold premium, was £726,837, being £42,148 more than during 1918, and the working costs were £671,434, a decrease of £12,046, the latter being largely due to the lesser tonnage crushed last year. It would thus be seen that they had a working profit of £55,402, to which must be added the difference between sundry items of revenue and expenditure, representing a credit of £6,270, which made the net profit for the year £61,672. The appropriation account was credited with the latter figure, and also with £170 for forfeited dividends; and there was a £2,028 credit on capital account, which items, with the balance at the commencement of the year, made a total sum of £215,578. Out of this £3,405 was paid for Government taxes, two dividends, Nos. 39 and 40, amounting to £58,575 were declared, carrying forward a balance of £153,598 to the current year's account. Of this balance, £87,181 was made up of cash, less liabilities, and the remainder comprised cash assets such as stores, sundry debtors, etc.

Development Curtailed.

In considering last year's operations they had to bear in mind that owing to the prevailing high working costs it was necessary to curtail development work in order to make a profit, and the footage accomplished last year only equalled an average of 400 feet per month, as against an average of about 1,000 feet per month in the previous year. The advent of the gold premium, however, enabled a larger footage to be accomplished than would have been the case without it. The tonnage of ore developed was 215,500 tons, of the value of 5.9 dwts. The ore reserves on re-calculation showed a tonnage of 1,375,200 at the end of last year, of an average value of 5.9 dwts. This tonnage was only 174,100 less than the tonnage in reserve at the commencement of last year, whilst the value was the same. The consulting engineer reports that there is little hope of increasing the grade of ore mined, and he forecasts a decline. The future was wholly dependent on working costs. With the ore reserves now on hand, if a reduction in the present high costs was made to the level of, say, three years ago, or even slightly higher, the mine could continue to earn profits, even if the gold premium vanished, subject to their being able to obtain a reasonable supply of native labour, the position of which during the past year had been disappointing.

A Working Loss.

For the first five months of the current year the company had made a working loss of £2,100, notwithstanding the gold premium. After allowing for decrease in cash assets, interest and sundry revenue received and amount realised in excess of previous gold valuations this loss is converted into a cash surplus of about £9,000, and the board decided to declare a dividend of 2½ per cent. for the current half-year, trenching upon the cash balance from previous years' profits to enable this to be paid. It is estimated that after paying this dividend the company will have a cash surplus of about £74,000.

Working Costs.

The results for the current year to dato had made it more apparent than ever that if the company was to continue operations a reduction in working costs must take place. In order to meet the situation the management met the European employes, and, after putting the matter fully before them, was assured of their hearty co-operation. A limited amount of retrenchment and reorganisation had taken place, and every effort was being made to improve the position. It was absolutely necessary in the case of that mine that everybody connected with it must give of his best, and whilst some improvement was noticeable consequent on the discussions which had taken place with employes, it was hoped that this would increase and thus prevent the mine from closing. During April of this year caving of ground took place in the underground workings in the neighbourhood of No. 1 shaft in the eastern section of the mine, and the work being carried on there has had to be temporarily, if not permanently, abandoned.

The report and balance sheet were adopted.

BANTJES CONSOLIDATED.

The annual meeting of the Bantjes Consolidated Mines, Ltd., was held in the board room, Corner House, on June 22nd, Mr. F. Raleigh presiding over a large attendance of shareholders.

The Chairman, in moving the adoption of the report and accounts, reminded shareholders that mining operations ceased at the end of 1918, following a working loss of £35,200 made in the two and three-quarter years ended September 30, 1918. The increased working cost due to the war was the chief factor in the policy then adopted. When closing was decided upon arangements were entered into with their eastern neighbour the Consolidated Main Reef Company, for the continuation of a drive previously driven into the Bantjes claim area, Westward towards a point where the Bantjes incline would intersect it some 500 feet below the Bantjes 18th level, with the object of testing a long stretch of reef measuring 3,500 feet from the Consolidated Main Reef boundary. During the year 601 feet, and since the end of the year a further 231 feet had been driven. Their prospecting efforts in this direction had so far proved disappointing. The drive had a further 2,346 feet to reach the line of their incline shaft and the board's present intention was to carry it on for the time being in the hope that they might yet encounter payable values. The cost of this work had thus far chiefly been borne by the Consolidated Main Reef Company because the drive passed through a strip of Bantjes' claim area adjoining their boundary which they leased to that company when making the arrangement with them for the drive to be put in. The area so leased was equal to about 26 claims and during the past year the Consolidated Main Reef Company had opened up the area in six drives, but the values obtained were such that that company had discontinued driving and they would now extract any payable ore developed by them—for which the Bantjes' company received 1s. 6d. per ton—and they would presumably then abandon their rights to mine in that area.

During the whole of last year the clean-up of the reduction works continued, from which a profit of £12,805 was derived. Cash and cash assets amounted to £104,600. The net cash position showed an improvement of £49,377 for the year and stood at £80,138 at December 31 last. For the five months ending May 31 last the working profit had been £3,723. There was an improvement of £6,844 in the company's financial position for the first five months of this year. On the question of whether, in view of the gold premium, mining operations can be resumed the board went fully into this matter from two points of view. Firstly, the reopening of the mine for the purpose of mining all the payable ore at present developed; secondly, the reopening of the mine for the purpose of developing the southern claim area. Their conclusions were in regard to the first that it would involve the risking of the whole of the company's present cash in hand and under present-day conditions was not warranted and in regard to the second that the necessary expenditure of £270,000 could not be justified depth. Shareholders would agree that by to-day's indications of values at the board's present policy of carrying on the exploratory drive for the purpose of ascertaining the values of the reefs below the existing mine workings was the right one to continue. If the unpayable values being encountered in the drive should persist as the work proceeds farther, the directors will call the shareholders together in general meeting to consider the advisability of liquidating the company.

Shareholders' Questions.

Mr. R. W. Stevens inquired why last year's report showed the reserves at 95,000 tons averaging 6.3 dwt., but in this year's report they stood at 214,000 tons at 6.35 dwt. How had that come about seeing the mine was flooded?

The Chairman replied that 95,000 tons was the quantity then available, but other reserves became available after certain work had been done.

Mr. Stevens: "But no development work had been done." Surely there was something radically wrong. He suggested they should get a report from an independent engineer.

The Chairman quoted from the consulting engineer's report to show how the figures had been arrived at.

Mr. Stevens asked whether the directors were aware that they had allowed the mine to become flooded. Were they aware what they were doing when they withdrew the pumps?

The Chairman said the board was aware of the steps taken in regard to the withdrawal of the plant. The mine was flooded deliberately. To have kept it dewatered would have cost £2,000 to £3,000 a month, and the board would not have felt justified in incurring that expense.

Mr. Gamble said they were going to wait four years for information, and then they would probably have to dewater the mine. By sinking an incline shaft they could get the same information as by carrying the 11th level drive from the Consolidated Main Reef.

The Chairman passed round a plan which he thought would enable shareholders to test Mr. Gamble's statement.

Mr. Stevens said they had £100,000 cash in band. Could not some of that be distributed to shareholders to help those who had held on to Bantjes for many years.

The Chairman: "If we are ever going to start this mine again——"

Mr. Stevens: "Let us dispel that idea from our minds." (Laughter.)

The Chairman said that if they had to start the mine they would want £100,000 for reopening it. Therefore it would be foolish to distribute that money unless they agreed to throw up the sponge. He was quite willing that the matter should be considered at the next meeting of the Board. He felt they should carry the drive a little farther and if payable values did not eventuate then shareholders should be called together to consider the matter of liquidation.

Mr. Gamble expressed the fear that the Consolidated Main Reef would absorb their property as it had the Main Reef West.

After the consulting engineer, Mr. H. Stuart Martin, had fully explained the position, the report was adopted.

A motion by Mr. Gamble that a meeting should be called within three months to consider liquidation was defeated.

CENTRAL MININGS.

Presiding at the annual meeting of the Central Mining and Investment Corporation, Sir Lionel Phillips delivered an interesting review of the economic position.

He declared that the bedrock principles of finance were being ignored and that false prosperity was being created by a plethora of printing press money. While financial expedients were pardonable during the war, the time had come to make everyone realise they must get down to steady hard work, which was the only road to counteract the impoverishment caused by the war.

Referring to the demand for higher wages and less hours, Sir Lionel pointed out that the world was not following Britain's example in this respect in anything like the same degree. He expressed the fear that in the day of competition which was bound to ensue Britain would find herself falling behind in the industrial race, and Labour would inevitably be the greatest sufferer. Signs were not wanting that the violated laws of economy were beginning to operate. Money was dear and confidence weak. The City, that stronghold of national stability, was uneasy. "If we are to avoid a crash which may have an effect the magnitude of which cannot be gauged," said Sir Lionel, "we must all bestir ourselves. We must realise that we have been and are living upon a false economic basis, which toil and thrift alone can cure."

Affairs of the Corporation.

Proceeding to deal with the affairs of the Corporation, the chairman said he considered the position was eminently sound. The reserve built up for four years had reached £650,000. The carried forward would considerably exceed £100,000, while, placing the total of the liabilities against the total of the readily realisable assets, a surplus emerged of approximately half a million sterling, exclusive of claims against late enemy countries. The claims against Germany for cash, interest, coupons and drawn bonds, less commission payable to the clearing house, exceeded £400,000. The whole of the investments in countries lately at war with Great Britain should, therefore, eventually stand in the books at nothing.

Since the close of the year the Austrian Treasury bills due in New York in January, 1915, had been repaid plus interest. The loans against security were all good. Those subject to the emergency rules, of which only a small balance remained last year, had disappeared. No loss whatever had been incurred in connection with the loans to the Stock Exchange, which at the outbreak of war exceeded a million sterling. (Applause.)

Referring to the statement that the increased profits were attributable to the realisation of assets, Sir Lionel Phillips pointed out that while it was true some of their assets were sold advantageously, the investments given in the balance sheet were greater than those of the previous year.

Dealing with the profit and loss account, Sir Lionel mentioned that the most significant feature was the transfer of £810,000 to appropriation account, against £397,000 in the previous year. The general expenses had risen from £38,000 to £52,000. The rise was partly due to a contribution of £15,000 to various educational and benevolent objects during his recent visit to Johannesburg. Of this amount £10,000 went to the University of Johannesburg.

An Encouraging Outlook.

A final dividend of 2s. had been declared together with a bonus of 6s., representing a payment of 18s., or 11¼ per cent., free of income tax, which was equal to 16 per cent. gross for 1919, besides additions to the reserve and pension funds. The sum of £150,000 had also been set aside for prospective income tax, while £62,000 more than last year was being carried forward. Without disregarding the disturbed economic position of the world he considered the outlook encouraging.

Referring to the currency question, the speaker mentioned the fact that the weight of opinion in South Africa was unquestionably on the side of stopping the circulation of gold and providing sufficient paper currency covered by gold. He pointed out in that connection that the value of gold might rise in the autumn owing to American exports. The gold premium made it possible to comply with the wage demands of white labour last February, but the situation then predicted was now arising. He believed, however, that the difficulties were not insuperable with goodwill on both sides.

Referring to the work of individual mines in which the Corporation was interested, Sir Lionel stated that during his recent visit to South Africa he went underground in most of these mines. He expressed pleasure with the work done and with the administration and the prospects.

After dealing with each mine individually he came to the proposal to establish an iron and steel industry at Pretoria. He said that the matter was at present in the preliminary stages. The difficulties were many and the project required the closest study.

In conclusion, Sir Lionel announced that an extraordinary meeting would be held to amend the articles of association to entitle the directors to 7½ per cent. of the surplus profits after the payment of a 7½ per cent. dividend.

Sir Evelyn Wallers.

Sir Evelyn Wallers, in seconding the adoption of the report, said he considered the fact that certain mines had to close down was of serious moment for South Africa. He emphasised the necessity for the goodwill of the workers, native as well as white. The white employes had recently recived increases of wages, and the native worker also showed signs of discontent and his position had to be considered. The majority report of the Low Grade Mines Commission recommended the removal of the legal colour bar, but its removal would leave in the Transvaal a much more effective colour bar, namely, public opinion. The position was bound to change. The position of native labour was one of injustice, and the white workers and members of trade unions would realise that native workmen must have a greater opportunity both of work and wages. These greater opportunities would ultimately be of benefit to the white workmen and the general community as well as to shareholders of the Corporation's mines. (Applause.)

The report and accounts were then adopted, as well as the resolution providing for 7½ per cent. of the surplus profits as extra remuneration for the directors.

Sir H. Ross Skinner and Messrs. T. J. Milner J. R. Leisk and F. R. Phillips were re-elected, directors and the proceedings then terminated.

LEEUWPOORT TINS.

The eighth ordinary general meeting of the Leeuwpoort (African Farms) Tin Mines, Ltd., was held on June 23. Mr. Julius Jeppe, the chairman of the Board of Directors, in his speech, said the directors' report and accounts and manager's report have been in the shareholders' hands for some time. Those reports dealt in detail with most of the principal items in the accounts; they also gave them the position of the different workings of the mines up to the end of last year. The principal points in the manager's report which he would like to bring to their notice are these:—

"The tonnage of our ore reserves at December, 1919, was practically the same as it was in the previous year, but the average value of those ore reserves had increased by 0.27 per cent. metallic tin. During the year under review, 63 per cent. of the ore mined was obtained from sources which were not included in the ore reserves. In the past years he had drawn their attention to that very satisfactory feature in their operations. For instance, in

1915	43.86 per cent.
1916	33.80 per cent.
1917	26.27 per cent.
1918	32.20 per cent
1919	63.70 per cent.

"These figures justify the assumption that our real ore reserves are at least 40 per cent. more than as stated in the report," continued Mr. Jeppe.

of total ore mined was drawn from extraneous sources.

In spite of the increase in the cost of labour etc., the expenses were 4s. 7d. less per ton than they were the previous year. This is chiefly due to the increased tonnage mined, and justified the policy of your Board is spending a large proportion of your profits on additions to the plant, thus allowing for the treatment of 5,000 tons per month. These additions are detailed in the manager's report; we spent during the last three years £42,782 of your profits on increases to and improvement of plant.

"In the balance sheet for the year 1918, under the heading of development there figured an amount of £13,182 4s. During the year under review, we spent a further £2,637 14s. 7d. on this account. This total sum of £15,819 18s. 7d. represented the balance of the cost of developing the 66,251 tons, which represented your ore reserve at the end of the year 1919. In former years, this account was reduced by charging 4s. per ton for ore milled during the year. Your directors, after giving the matter careful consideration, decided, instead of continuing this method, to write the whole amount off profits, so that this item does not appear in this year's accounts. You may say that this step was somewhat drastic and perhaps unfair to the present shareholders, who would have had the natural right to divide the profits made during the year; unfortunately, however, although the profits were made, they were not represented by cash since such cash was utilised for necessary additions and improvements to your plant.

NO DIVIDEND.

"You will notice that your company owed at the end of 1919 the sum of £93,959 9s. 3d., and that its liquid assets as represented by tin in transit, cash, and sundry debtors, amounted to £79,879 6s. 9d. (The mine stores on hand, namely, £13,352 0s. 10d. are not included in the liquid assets in this calculation.) There was, therefore, no possibility of paying a dividend. Since the beginning of this year this difference between the liquid assets and our liabilities has been wiped off, and we have already been enabled to declare a 5 per cent. dividend for the current half year.

The total revenue from tin for the year was £133,370, which was £23,760 less than in 1918. Working costs amounted to £108,769, an increase of £11,142, the combined result being a drop in working profit of £31,902, to a total of £24,601. Sundry revenue increased this figure by £714, making the total profit for the year £25,315. Interest, income tax, and depreciation of buildings, reduced this by £7,216 and the balance carried to appropriation account was £18,129. After writing off £3,655 from machinery and plant, and £15,820 from development account, an amount of £15,274 was carried forward as against £16,620 at the end of 1918. The reduced revenue was largely due to the lower price obtained for tin, as the actual amount of metallic tin produced was 537 tons, an increase of 15 tons over the production for 1918. Tin realised £53 per ton less than for the previous year, which made a difference of no less than £28,460 on the tin produced during 1919. The tonnage milled was increased by 9,147 tons and the working costs were reduced by 4s. 7d. per ton to 41s. 5d. inclusive of all charges, in spite of the fact that for the first few months of the year they were still suffering from the effects of the "flu" epidemic in the way of shortage of native labour, apart from its reduced efficiency. In spite of the limited development they were able to maintain the ore reserve tonnage, whilst the value showed an appreciable improvement.

THE PRICE OF TIN.

"The difference between the price of Straits tin in London and the price quoted from Singapore dropped from about £50 a ton, to £10 a ton, so it was decided to discontinue smelting their own concentrates and the smelting works had been closed down until such time as it might be profitable to use them; in the meantime, the total cost of the smelters had been written off.

"The average price obtained for tin during 1919 was £249 as against £302 in 1918. As to the price likely to be obtained in the future, it is obviously impossible to say anything definite, but the following extract from "The Financier" of May 21 of this year is interesting It says:—"There can be no question at any rate of the price of tin baving been influenced by the laws of supply and demand, notwithstanding that the market broke sharply on a shipment of 2,000 tons from Holland recently, as the world's shortage of the material is notorious, and in no direction is there any evidence that the production is likely to meet all requirements for many years to come. If the decline in the price of metal proceeds much further, the position in this respect will be accentuated, as the Cornish industry, for a start, will be brought to a standstill." I am glad to say that since this article was written the contention has proved correct, because during the last week the price of the metal has been on the up-grade. The price on June 15, 1920, was £235 10s., last Monday's price being £259 5s.

THIS YEAR'S OPERATIONS.

"Coming to the operations for the current year the chairman said that the average monthly tonnage crushed for the first five months was 4,626 tons as against a monthly average of 4,082 tons during 1919. On this account, principally costs have been reduced to an average of 42s. 9d. per ton, during 1920, to date as against 41s. 5d. in 1919, in spite of the fact that increased wages and salaries were being paid to the employes.

"With regard to the development that had taken place during January and today the manager reported that the recent deevlopment values in the various mines had been highly satisfactory.

"At the spruit workings a winze from the fifth level (the lowest point on the lode in this section) is giving payable values.

"At the south spruit extension, on the bottom level, the fifth north drive has exposed very high-grade ore for the last 250 feet.

"Adit Working: Twin Lode.—Recently a lode was struck worth 3 per cent. to 5 per cent. over 30 inches at this working. Further exploitation definitely establishes this occurrence below the intersection of the adit lode, and therefore enables it to be correlated with previous borehole values at the approximate position of the twin lode.

"In simple language, this means that an area of at least 500 x 500 feet has been tested below any of the present workings, which is equivalent to, say, 63,000 tons on a three-foot stoping width basis.

"Other working on the mine has not revealed anything of special importance. The H.G. with its ore reserves standing at 875 tons at the beginning of the year has given and continues to give an average of 1,320 tons of payable ore per month.

"The native labour position has improved considerably since the beginning of the year— so much so that we are now employing natives on the alluvial deposits preparatory to the production of tin from this source. Two pans capable of treating from 15 to 200 tons of alluvial per day are now on the property and being installed. This work will not interfere in any way with the development of the mine, but will no doubt augment the monthly production of concentrates.

"In conclusion, I would like once more to express the thanks of the Board to the manager and staff at the mine and to the secretary and staff at the head office for their loyal and efficient services rendered during the year."

At the conclusion of the speech a number of questions were put by Mr. H. T. Heal, which the chairman answered seriatim. The report and balance sheet were then adopted without dissentients, and the retiring directors, Messrs. W. J. Gau and B. Southwell, re-elected.

ANGLO-FRENCH (TRANSVAAL)

NAVIGATION COAL ESTATES, LTD.

The 18th ordinary general meeting of shareholders was held on Thursday, 24th June, 1920, at 12 noon. Mr. Julius Jeppe (deputy-chairman of the company) presided, and amongst those present and represented by proxy were Sir Abe Bailey, Bart., Messrs. C. C. Curtin, W. J. Gau, E. M. Hind, E. Molyneux, W. Nelson, D. O'Regan, G. B. Pascoe, Bailey Southwell, Anglo-French Exploration Co., Ltd. and A. Woodrow (secretary), representing in all 125,967 shares out of an issued capital of 230,000 shares.

The Chairman said:—Before reviewing the accounts now in your hands I think it is due to you that you should be informed of the reason of the change in the control and administration of your company.

Towards the end of last year the South African Townships, Mining and Finance Corporation, Ltd., acquired the large holding of the estate of the late Sir George Farrar and the Anglo-French Exploration Co., Ltd., in the company, and, with such acquisition, took over the administration of your business, so that since the beginning of this year it has been under the present control.

Sir Abe Bailey, your chairman, is unfortunately unable to be present, and it is my privilege, as his deputy, to preside over you to-day.

Well, gentlemen, the accounts—to which are attached the directors' and general manager's reports—have been in your hands for some time, and no doubt you have carefully scrutinised them. The reports alluded to fully explain the different items in the balance sheet, but I may be permitted to draw your attention to one or two of the salient features. To begin with, I must ask your condonation of the exceptionally long interval of time between the termination of this period under review and the date upon which the transactions appertaining thereto are submitted to you. The delay has been unavoidable; it was consequent upon the transfer of administration already alluded to.

The net profit on the year's work amounts to £13,663 12s. 5d. The balance of £19,776 3s. 8d. brought forward from 1918, when added to the year's profit, makes a total of £33,439 16s. 1d., and has been allocated as follows: £8,400 to the payment of interest due to the 31st December, 1919, upon the cumulative preference shares, £5,000 to the etxension of and depreciation of the plant, £210 to an estimate of the annual Government taxes, and a balance of £19,829 16s. 1d. has been carried forward to the year 1920. Incidentally, you will note that this balance is £53 12s. 5d. in excess of that brought forward for last year.

The period under review has been one of gradual recovery from the strangle-hold of war, to which your colliery, in common with all peace industries, has been subjected. To instance but one or two of the factors that have hindered due expansion—and, indeed, constricted even normal production—I may mention that (a) more than half the year had elapsed before it was possible to begin upon the long-needed replacement of worn-out cutting machines, and (b) nine months before any improvement in the chronic shortage of trucks could be recorded, and (c) a definite interruption in the regular supply of natives (due to a recrudescence of influenza in certain districts of the province of Mozambique) occurred during May

It is almost axiomatic of all industries that unrest and discontent are bred of adverse circumstances, and this ear has shown that colliery practice is no exception to the rule, for while the employes, both European and native, on your property have made no direct manifestations, neighbouring pits have not been so fortunate. I am safe in stating that timely improvements in the conditions of labour have staved off serious trouble among the natives. Almost incessant negotiations with white labour unions in one form or another have been in progress throughout the year, culminating, though not terminating, in the National Conference of Employers and Employes, held in November at Pretoria. It is to be hoped that its ultimate outcome may be of mutual benefit, but the immediate result has been a very considerable increase in the cost of production, with a reciprocal decrease of profits.

The Transvaal Coal Owners' Association continue as our selling agents. The results have not been such as we could have wished because of the abnormally low price secured by Transvaal coal in general. The quality of your coal is sufficient to secure a slightly higher price per ton than the average, but this itself—i.e., average price—has reached an unwarrantably low figure. There are, however, good grounds for anticipating an improvement. The demand for shipment coal and for coal products is now world-wide, and a strong and increasing call to supply its urgent needs has reached South African ports. The Union Government realises the present opportunity for extending the sea-borne coal trade, and has shown signs of practical sympathy; indeed, it would almost appear as if for the first time Transvaal coal may have a free and unfettered market. The local coal world is now directing its attention more to the economic production of power than, as heretofore, to the wasteful production of heat in open grates and inefficient boiler furnaces. I would not have you infer that the long-delayed colliery owners' millenium is at hand, but I feel convinced that modern methods of coal utilisation are approaching, and that the vast stores of fuel of various grades are going to be scientifically exploited in the near future. It will be the concern (or mission) of coal owners to see that a fair share of the profits incidental to such expansion falls to their lot.

You are, of course, aware that a disastrous fire took place on your property on the 21st January of this year. Fortunately, it was unattended by loss of life or injury to any employe. The fire started on the headgear; it was probably due to a very severe thunder storm which passed over the property between two and three o'clock in the morning. There were but few people about, and it therefore got a thorough hold and spread so rapidly that, in spite of the magnificent endeavours made by the manager and his men, who were very soon on the scene, it was found impossible to save the wooden headgear, but, owing to the exertions of those men, the buildings and all the machinery in the power-house, etc., were saved. The burning timbers of the headgear fell into the shaft and set light to the shaft timbers, and it was subsequently found necessary to seal up the shaft. The loss of material, etc., was paid for by the insurance company. In addition to this, the standing charges were insured, and part of these have been recovered from the company, but the balance of our claim has not yet been agreed to by the insurance company. In spite of this insurance, we naturally suffered considerable loss, the worst feature being that we have lost a period of from six to nine months of profitable business. A few days after the fire further investigations were made by your general manager and manager, who strongly advised sealing up the shaft for a period. Under these circumstances your directors, after giving very careful consideration to the matter, decided that it would be in the best interests of the company to start at once an entirely new pit. Fortunately we were in possession of all the necessary data obtained by boring operations in 1918, which disclosed a large coal-bearing area on your property, the lower seam of which is estimated, after allowing for faults etc., to give us a tonnage of over 36,000,000 tons. The area containing this has been divided into four working zones—one where the fire occurred, the second where the new pit is being put down, and the other two will be considered later. I am indeed glad to be able to tell you that, owing to the splendid exertions and good work of the staff and men at the mine, the new pit is now within about 150 feet of the lower coal seam. At the present time the main hauling shaft is down 120 feet, the ventilating shaft has been completed, and the work of transferring the working equipment to the site is proceeding in the most expeditions manner. The distance of the new shaft from the old one is about a mile. The nearest point of the working of the old shaft is, roughly speaking, 1,200 feet from the new one. You must understand, however, that although before the end of the year we hope to be able to win coal, it will be at least another three months after that before we can hope to attain an output of 35,000 to 40,000 tons per month, which figure is our present goal.

To refer back for a moment to the 36,000,000 ton I just mentioned, you are, I think, aware that this is only one of our seams. It certainly contains the best coal, but the three other seams lying above it will, without doubt, be worked at some future time and produce hundreds of millions of tons, the seams being from twenty to thirty feet thick.

Gentlemen, before formally moving the adoption of the report and accounts, it is my pleasant duty to record our appreciation of the good services rendered by Mr. Thom (the general manager), Mr. Pender (the manager), the staff and men at the mine, also the newly-established staff at the head office here under Mr. Woodrow, and our special thanks are due to Mr. Pender and his son for their gallant and successful efforts in restricting the area of the fire.

The Chamber of Mines and the Exchange Question.

Dealing with the Currency and Exchange Select Committee, in the course of the latest quarterly report the Chamber of Mines Executive Committee states: "The House of Assembly appointed a Select Committee on the questions of currency and exchange, and evidence was given before that Committee by the President of the Chamber, pointing out the seriousness to the mines of the position brought about by the leakage of gold and the high rate of exchange on London, and suggesting the temporary employment of inconvertible notes, backed entirely or to a very large extent by gold and strictly limited in amount, for the present currency." The preliminary steps in connection with the erection of the new refinery are practically complete and the matter is being pushed forward without delay. It is also stated that a deputation from the Merchants' Standing Committee on Imported Mining Supplies waited on the Chamber on April 16th and offered, on behalf of the mining material merchants, certain allowances to the mining companies whereby those companies would participate in the favourable rates of exchange for importers. Subsequently, however, the Committee withdrew their offer.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

THE MINERAL WEALTH OF THE BRITISH EMPIRE.*

Organising the Vast Resources of the Dominions—What has Already Been Done.

A movement which some observers qualified to speak with authority regard as destined to play an unequalled part in developing Imperial mineral resources has come into being during the last two years. Owing to the eventful period of its birth, the operations of the Imperial Mineral Resources Bureau have attracted less notice than their importance and rapid growth warrant, although they are a direct outcome of the Imperial War Conference of 1917. The central idea which inspired the formation of the bureau was that while the mineral resources of the Empire are sufficient to supply all the raw material it needs, machinery for co-ordinating and controlling their development was wanting.

Sir Richard Redmayne, who is chairman of the Board of Governors and represents the United Kingdom on the Board, gave a representative of the *Times* an account of the origin and objects of the bureau. He explained that at the Imperial War Conference in 1917 it was agreed that it was desirable to take steps to set up such a bureau, which should be charged with the duties of collecting information from the appropriate departments of the Governments concerned, and from other sources regarding the mineral resources and metal requirements of the Empire; and of advising from time to time what action, if any, might appear to be desirable to enable such resources to be developed and made available to meet requirements.

The composition of the bureau was completed at the end of July, 1918, and the Governors number 14. There are five Dominion representatives, one representative of India, one nominated by the Secretary for the Colonies, and six members, eminent in different branches of mining and metallurgy, appointed by the Lord President of the Council. Earl Curzon, who occupied that office during the formation of the bureau, is its President. The bureau was incorporated by Royal Charter last June.

THE COST OF INVESTIGATION.

There are four standing committees of the Governors dealing respectively with intelligence and publications; research and development; general purposes and finance; and legal matters. The offices of the bureau are at 2, Queen Ann'e Gate Buildings, Westminster, where an expert and secretarial staff is constantly at work. The cost of running the bureau is met out of the allowance of £10,000 per annum contribuated by the British Government and by contributions from the Dominion Government and India, which it is expected will amount to another £10,000 per annum.

While the finances of the bureau are run on cautious lines, a maximum cannot easily be put to its expenditure, which may be affected by unexpected demands from any part of the Empire. But £20,000 per annum is the estimate arrived at by the Governors of probable requirements for three or four years.

CO-ORDINATION NEEDED.

"An immense amount of valuable work is being done throughout the Empire," Sir Richard Redmayne continued, "to obtain information, much of which is practically inaccessible in quarters where it is most needed. Government departments are often at a loss for just this kind of knowledge, and important problems are referred to first one department and then to another, with unnecessary delay and confusion. The need for the bureau is all the more pressing owing to the wide geographical distribution of the Empire and the distances separating its component parts. The development of the mineral resources of the Empire seems to have taken place in the past without any constructive Imperial policy; it has lacked co-ordination and control. This will soon be a matter of the past, for the bureau will foster and safeguard the Empire's mineral resources and promote the welfare of related industries.

"The bureau is engaged in an extensive system of classification of the Empire's mineral resources, and is on the eve of publishing in parts a digest of statistical and general information relative thereto and to foreign countries. Considerable leeway has had to be made up owing to many countries having ceased to issue statistics during the War, and an effort is being made by the bureau to fill in the hiatus. The bureau has framed suggestions for a uniform system throughout the Empire of collecting and publishing intelligence regarding mineral resources. Considerable overlapping and squandering of energy and funds continues to exist. Where so many interests, chiefly of a Government departmental nature, are concerned, the eradication of this over-lapping of departments calls for delicate, though firm, handling."

WORK OF RESEARCH.

While watching and encouraging reasearch and carrying out investigations with the object of improving current processes and introducing new ones in order to render productive materials which have hitherto proved refractory and unprofitable, the bureau, generally speaking, does not itself engage in the work of research and development—though it has power to do so should it be deemed advisable. In regard to development of mineral areas, circumstances may render desirable the despatch of an expert mission to some distant part of the British Empire, or even to a foreign country, but the attitude of the bureau towards research and the development of mineral resources should not be to do the work, but to get the work done.

Early in the year a conference of representatives of various Government departments and of associations interested in mineral resources considered the most effective method of carrying on the important work of intelligence and publications, and research and development. Sixteen technical committees have been set up, the members comprising some of the best-known mining and metallurgical experts in the Empire, and these have mapped out an extensive field of work, the accomplishment of which, Sir Richard Redmayne thinks, will have far-reaching results.

The object of the creation of these committees is to securo the closer linking up of the bureau with the respective mineral and metal industries of the Empire. The information which is collected by the bureau will not be made public, as some of it is of a confidential nature.

THE COLLECTION OF INFORMATION.

Incidentally, Sir Richard Redmayne mentioned, the bureau is engaged in the formation of an index of technical information and the establishment of a working library, and is already daily employed in supplying information to many inquirers. The information is supplied free of charge. Proper precautions are taken against the conveyance of information to rivals to Imperial trade interests. The bureau has for some months been engaged on the preparation of a digest of the mining laws and practice of all parts of the Empire, and of foreign countries, and portions of this work are on the eve of publication.

The Governors have proposed to the Dominions, India, and the Crown Colonies that, were there established in each a highly qualified member of their mining or geological staff to act as a corresponding member of the bureau, it would conduce to a still closer connection of the component parts of the Empire. Recently the Union of South Africa and the Government of India each despatched a technical representative to the United Kingdom to keep in close touch with the bureau. The experiment has met with unqualified success. The bureau has been informed at first hand and in great detail by Major Trevor, Inspector of Mines, Pretoria, the representative of the Union of South Africa, of the most recent mineral developments in the Union, and the bureau has been enabled to further his objects. Mr. Coggin-Brown, an eminent geologist, who has a particularly extensive and detailed knowledge of the mineral resources of Burmah, has been loaned to the bureau for a year, and is working at its offices on Indian mineral resources.

Sir Richard pointed out the vast field of usefulness open to the bureau. "It can be truthfully said," he remarked, "that the sphere of its activities is only limited by the extent of its finances. It is confidently anticipated that within a very short time it will have been the means of so developing the mineral resources of the Empire that the Dominions, as well as the Mother-country, will not fail to realise that the cost of running the bureau is but as a drop in the bucket compared with the results which it has achieved."

---

* London *Times*.

THE NATIONAL BANK OF SOUTH AFRICA,
LIMITED.

PAYMENT OF DIVIDEND.

NOTICE IS HEREBY GIVEN that a Dividend of Seven per cent. per annum, plus a bonus of 1 per cent., has been declared for the year ended 31st March, 1920. The Interim Dividend declared in November last absorbed seven shillings per share, leaving nine shillings per share for the final distribution.

The Dividend and Bonus will be payable to Shareholders registered in the Books of the Company as at close of business on 22nd May, 1920, and to holders of Coupon 43 attached to Share Warrants to Bearer.

Warrants will be despatched to South African Registered Shareholders from Pretoria and to European Shareholders from London Office, on or about 24th instant.

Holders of Share Warrants to Bearer are informed that Coupons may be deposited at any of the Bank's Branches, and will, upon verification by Head Office, be paid on or after 24th instant.

By Order of the Board of Directors,
C. P. MATHEWS, Secretary.

Pretoria, 23rd June, 1920.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

Established 1891. Established 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

Vol. XXIX., Part II. July 3, 1920. [No. 1501.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

Agents for Great Britain and America: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

Annual Subscription Rates: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 127

Topics of the Week:

Some Notable Pronouncements 129

The Half-Year's Dividends in Detail 431

South Africa's Coal Output in May 433

The Roodepoort United Mill 435

The Southern Van Ryn's New Scheme 436

New Issue by the Rand Water Board 437

Pearl Bitumen Company's Prospects 139

The Week in the Sharemarket 111

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 443

Company Meetings: Rand Mines; Village Deep; S.A. Townships; Union Corporation; Meyer and Charlton; West Rand Consolidated; Roodepoort United; Aurora West; New Goch; Cinderella Consolidated; Rand Collieries; Jagersfontein Diamonds; Namaqua Copper ... ... i.

Notes and News.

Randfontein Central.

The secretaries of the Randfontein Central write, under date June 28: We beg to advise you of the despatch to-day of the following cable to our London office: "West Reef struck at depth of 1,130 feet in south vertical shaft ten sections sampled value 12·1 dwts. over 48 inches, dip 55 degrees. Randfontein leader missing in shaft."

* * * *

The Select Committee's Report on Currency and Exchange.

Mr. H. Strakosch must be a proud man to-day, in view of the fact that his expedients to solve the exchange and currency problems have been adopted practically in their entirety by the Select Committee. It is too late this week to deal further with the matter, but we may be forgiven if we take to ourselves the flattering unction that this was the first, if not the only, paper in South Africa to welcome and acclaim the Strakosch proposals as the best solution of our difficulties.

* * * *

The Rand Mines Meeting.

Sir Harry Ross Skinner presided at the annual meeting of the Rand Mines, Ltd.; and his speech is reported in another part of this issue. It will be seen to cover a wide variety of interests, and deals with most of the outstanding features of the year. The annual report of the Rand Mines, Ltd., was more than usually lengthy and exhaustive this year, and left little to the chairman's speech in the way of information regarding the mines of the group. Sir Harry Ross Skinner was, however, able to bring that information down to date, and his speech should be read by all interested in the industry.

* * * *

The Southern Van Ryn Absorbs the Nigel Van Ryn.

We understand that the Nigel Van Ryn Company has accepted by cable the offer of the Southern Van Ryn. Thus 257 claims of the Nigel Van Ryn will be incorporated with those of the latter company, bringing its total area up to nearly 2,200 claims. We learn that on these claims the Nigel Reef is showing excellent values, 20,000 tons of 8 dwts. ore being already blocked out. Mr. Calderwood, in a recent report, states that 78 per cent. of the Nigel Reef so far developed on the Nigel Van Ryn mine is payable. On the Southern Van Ryn the No. 1 incline shaft on the Van Ryn Reef has disclosed a payable block of ore equal to about 10,000 tons of a value of approximately 6 dwts. over a stoping width, and in both north and south drives the value at the headings are improving. With the acquisition of the new claims the Southern Van Ryn is expected to enter the producing stage within the next few months.

* * * *

A Note of Optimism.

The whole community owes a debt of gratitude to Mr. Julius Jeppe for his welcome note of optimism at the meeting of the S.A. Townships, Mining and Finance Co., Ltd. The speech is printed fully in another part of this issue; and we would specially commend it to the notice of our overseas readers who may have been unduly alarmed of late by the news of the curtailment of the mining industry. "In this country," said a well-known South African once, "the optimist is always right"; and certainly never was there more need than to-day for a little reminder of this sort, that the country has all along been progressing steadily, if slowly. If we are to realise the full possibilities of South Africa we must, of course, believe in it and in ourselves. No one is better qualified than Mr. Jeppe by long residence and distinguished services to the community to speak on the prospects of the place and of the country. His testimony carries great weight, and should prove an inspiriting tonic and mental corrective to those jaundiced and lugubrious people who are never happier than when prophesying disaster and disillusionment.

The Currency and Exchange Question.

The controversy on the currency and exchange question goes gaily on. Mr. Samuel Evans has been pointing out in the daily papers the dangers of forged bank notes, and quotes disquieting evidence of Bolshevist activity in that direction. Mr. Alex. Aiken has been contributing to the *Star* a valuable series of articles on the gold question; and Mr. D. C. Greig has not been silent. Meanwhile the report of the Select Committee is coming through in driblets, and bids fair to revive the whole discussion. With the Indian embargo on gold importations removed, it is suggested that some of the gold mines not under agreement to sell their gold in London—which agreement expires in three months—might make a trial shipment to that country.

* * * *

A U.S.A. Gold Bounty.

The reports, to which we drew attention recently, current as to the possibility of the United States of America adopting a legislative measure designed to stop the steady falling-off in the gold production of that country now take concrete form in a Bill. It may be explained that the gold producers of the U.S.A. do not enjoy the gold premium that exists elsewhere, as the currency of the country remains on a gold basis while those of other countries have depreciated. The consequence is that, as a result of the rising costs, the annual production in the past five years has dropped from $101,000,000 to $58,500,000, while it is estimated that for the current year production will be less than $50,000,000. At the same time, the consumption of gold for manufacturing purposes in the States has risen to $80,337,800 for 1919. Accordingly the proposition is to levy a tax of 50 cents per dwt. of fine gold contained in all gold manufactured, used, or sold for other than coinage purposes. This tax is to go into a special fund, out of which will be paid, for five years retrospective to 1st May last, a premium of $10 per oz. to the producer of new gold. Thereafter there is to be readjustment in accord with commodity prices. Certainly there is equity in making manufacturers pay for depleting the gold reserves of the country, while the scheme ensures to the mines what would in course of time accrue to a speculator in gold, as the course of production and manufactures certainly suggests the probability of this individual arising. It does not, of course, follow that Congress will adopt the suggestion, but the evidence in support of it is weighty and it appears practicable. It is not directly of overwhelming interest to investors, but in the proposal is the germ of an idea that might be advantageously utilised in South Africa, where a serious reduction in output may follow the closing down of a number of the low-grade mines.

* * * *

A Valuable Business Directory.

This is the age of specialization, and the "S.A. Engineers' Electrical and Allied Trades' Directory," issued this week, covers the field indicated by its title very effectively and comprehensively. Accuracy and right "down to dateness" are the features that distinguish this work from the general run of directories; and to all doing business with engineering firms, the mines, railways, municipalities and industries, or Government departments, the work is simply invaluable. The personal touch means everything in business to-day, and the value of knowing the names of all the engineers and managers of all the mines and other activities covered by the directory need not be laboured. In addition to being a specialized trades directory of a kind never before attempted in this country, the work comprises a very complete mining directory, compiled with the utmost care and with the co-operation of the mines. It also has enjoyed the active aid of the various Government departments, such as that of railways, mines and P.W.D., in making the lists of those establishments accurate and complete. The book has met with a most flattering reception from every quarter, and the publishers have been gratified to find that it has agreeably surprised subscribers by the extent and accuracy of its information. The work runs to over 510 pp. and has been printed and produced by the Argus Co. in its best style. The binding is in blue cloth with gold lettering, and despite the very high cost of paper and printing on the Rand to-day the price is fixed at 30s. per copy. Some idea of the enormous amount of work entailed in the compilation may be got from the facts that the alphabetical section contains full descriptions of nearly 700 firms, that the list of agencies of British manufacturers in South Africa runs to upwards of 1,000, and that there are some 14,000 items in the Buyers' Guide section. It is impossible to describe all the valuable features of the work, which may be inspected at the offices of this paper, where copies also may be ordered.

* * * *

C. M. & M. Society.

The annual general meeting of the Chemical, Metallurgical and Mining Society of S.A. was held last Saturday evening, Mr. Jas. Gray, F.I.C., presiding. Mr. Gray said that the most satisfactory feature of the year was the consummation of the aspirations of the scientific and technical societies of South Africa in having successfully obtained a joint home. The resumption of the mining exhibition and the annual dinner were the most notable events of the year. The number of new members and associates who had been elected during the year showed a gratifying increase. The necessity and utility of the society had been shown by the large number of original contributions which had been received. It was hoped that the awards which it was proposed to offer under the research endowment fund would result in original contributions of real merit being presented to the society. He paid a tribute to the work of the hon. treasurer (Mr. Thurlow) and the secretary (Mr. Jeoffreys). Mr. John Chilton was elected president for this year.

* * * *

The Tanganyika Territory.

The Tanganyika Territory (late German East Africa) is now in process of organisation on the lines of a British Protectorate. This is not an easy task and the difficulties are particularly great in matters connected with land. Existing claims of Germans and others must be ascertained and either rejected or admitted before it is possible to give a sound title to new applicants; and as a large proportion of the German records have disappeared, and a properly equipped land department has still to be formed, it is probable that some considerable time must elapse before any grants can be made. It is therefore considered premature at present to encourage an influx of would-be settlers. It should be borne in mind that only a small portion of this large territory is suitable for settlement by Europeans, and that of the portion so suitable the greater part consists of plantations belonging to ex-enemy subjects. The question of concessions in lands, minerals, etc., is also a complicated one, and further investigation is required before their disposal can be taken up. The introduction of mining regulations is now under consideration. As regards native labour, it is understood that there is nowhere a superfluity and that in the areas suitable for European settlement there is a scarcity; but until affairs have become more normal it is not possible to give any accurate statement on the subject. As regards the disposal of products, there should normally be no difficulty. The system of trade permits which was necessary while the Tanganyika Territory was still, technically, "enemy territory" has been abolished. Ex-enemy persons who wish to proceed to the Territory have to apply direct to the Chief Secretary to the Administration at Dar-es-Salaam for permission to enter the Territory, but such permission is not, in fact, granted save in the most exceptional cases. Similarly, all ex-enemy subjects still resident in the Tanganyika Territory are to be deported, subject to the possibility of exceptions being made where in the opinion of the Administration there are special reasons justifying this course. Three British banks already operate in the Territory, *i.e.*, the Standard Bank of South Africa, the National Bank of South Africa and the National Bank of India. Application should be made to the Secretary to the Administration, Dar-es-Salaam, for any detailed information which may be required.

TOPICS OF THE WEEK.

SOME NOTABLE PRONOUNCEMENTS.

THE mining industry has been extremely articulate, not to say eloquent, during the past few days, and the ordinary commentator is almost embarrassed by the wealth of facts and arguments brought forward. Mr. H. O. Buckle, the new President of the Chamber of Mines, in his inaugural oration, Sir Harry Ross Skinner at the Rand Mines meeting, and Mr. Newhouse at that of the Union Corporation—all spoke out loud and clear regarding the present disabilities of the industry. Sir Harry Ross Skinner's speech and that of Mr. Newhouse are reported among our company meetings, but the main points of Mr. Buckle's may be given here. The new President of the Chamber struck a dignified, detached, and almost judicial note in his initial public speech from the chair; and the staid demeanour of the Chamber was moved to unwonted applause when he had concluded his masterly review and analysis of the position. It is true that Mr. Buckle did not pretend to produce any nostrums to cure the present *malaise* of the mines. But he did succeed in putting the known facts in a new light, and his sincere and convincing testimony to the simple truth and justice of the case for the mines should carry the utmost weight. Col. Creswell's now famous Bill he simply ridiculed to death. Regarding the clause requiring three months' notice of the closing down of a mine he said: " The factors which, under present conditions, determine whether or not a mine shall close are entirely beyond the control of the management. The principal of those factors are, just now, the price of gold and the rate of exchange; and neither an individual mine nor the whole mining industry can exercise the smallest influence on those two factors. When gold was at £6 7s. 6d. and exchange at 13-16 per cent., practically every mine on the Rand was payable. With gold at £5 3s. 2d. and exchange at 6½ per cent., a very different situation is created. If it were possible for anyone to prophesy correctly how the premium and the exchange were going to vary during the next three months, it might be possible for the mines to give three months' notice of closing; but, since no one can so prophesy, Colonel Creswell's proposition is impossible." Dealing further with the question of closing down and unemployment, Mr. Buckle said that the Chamber, realising the seriousness to the miners of the position thus created, called a conference with the South African Mine Workers' Union, which was attended by the executive of that body and by its branch secretaries along the Reef. It was pointed out to them that when, in February last, large increases of pay were granted, it was clearly stated by the Chamber and fully recognised by the unions that if any material change in the situation took place the whole position would have to be reconsidered. Since then, owing to the fall in the premium and the rise in buying rates on London, the situation had changed, to the disadvantage of the industry, to an extent of approximately £10,000,000 per annum; and it was necessary to meet the position by reorganisation of work, reduction of pay, or both. Figures showing the position of certain mines were laid before the conference by members of the Executive Committee, and it was pointed out that while nothing could save some of the mines, others might be continued in operation for a time if the hearty co-operation of the employees could be secured. In commenting on the Low Grade Mines Commission's report, Mr. Buckle emphasised the fact that in addition to their specific recommendations, the Commission have also done useful work by stamping out certain popular fallacies such as that administrative costs and group buying costs contribute largely to the expense of working. The report of the Commission shows clearly that the total administrative costs are only about 6d. per ton milled, and that the average buying cost only reaches the exceedingly low figure of 1¼d. in the £. The controversy over the exchange and currency question was referred to by Mr. Buckle, in characteristic fashion. He said: " If any of you are not familiar with the various opinions and with the arguments brought forward in support of each, you can hardly complain that such unfamiliarity is due to a lack of opportunity for learning the views of the protagonists." In a different way Mr. Newhouse's speech was as interesting as Mr. Buckle's. If the latter was extremely vigorous and incisive, the former was extraordinarily outspoken and slashing. He condemned the banks in no measured terms. " Had they (the banks)," he said, " realised the position early in 1919—when the United Kingdom currency first went to a discount; in other words, when gold began to be sold at a premium in London—and taken appropriate action, many of our present difficulties might have been non-existent." Some of the figures, moreover, quoted by Mr. Newhouse almost take the breath away. The settlement of last February with the white miners, he showed, involved an increase in pay to the white employees of about £2,250,000 per annum. " No sooner had the whites been satisfied than the natives began to agitate—finally striking on many mines. Concessions involving, roughly, £650,000 per annum were made to them. Needless to say, the merchants, too, had to be paid more for their wares, while the extra direct costs of phthisis compensation under the 1919 Act is, at present, £500,000 per annum. In short, the total increase in working costs of producing Rand companies, comparing the quarter ended 31st May, 1920, with the quarter ended 31st July, 1919, is over 3s. per ton, equal to a rate of over £4,000,000 per annum, or an average of about 12s. 6d. per fine ounce, exclusive of increased realisation charges. Therefore, the average present benefit to the mines of the increased price of gold is, per fine ounce produced, the difference between 97s. 6d. and the Johannesburg price of gold. This means that with the present price of gold a number of mines are worse off than they were before the days of the premium, for, of course, mines enjoying a high yield per ton receive a greater benefit than those with low yields. This rise in costs at the Modder Deep, for instance, has only been about 8s., and at the Geduld 10s. per fine ounce. In other words, the premium benefits the former to the extent that the Johannesburg price of gold per ounce produced exceeds 93s. and the latter to the extent that it exceeds 95s. It is interesting to note that the rise in working costs of 12s. 6d. per fine ounce which has taken place during the last twelve months about doubles the rise during the previous five years, since the commencement of the War, the total rise per fine ounce since 1914 being from approximately 54s. to approximately 79s." On the subject of the new Phthisis Act, which he explained would cost the industry the enormous sum of £4,300,000 for the five years to July 31, 1924, Mr. Newhouse said: " While the appointment of the Low Grade Mines Commission was under consideration, the Government was engaged in passing through Parliament the 1919 Miners' Phthisis Act, to which a brief reference was made at the last annual meeting immediately after its passage through Parliament. How the two measures are reconcilable I do not know, for no Act could have been better devised to increase the burden of the poor mines and add to their number. It seems to have been passed without any clear idea of its cost to the industry and without consideration of the first principles of sound taxation." If this is to be the last of Mr. Newhouse's speeches from the chair at the Union Corporation annual meetings, one can imagine the Minister of Mines—who, by the way, was on the Rand last week-end—will be glad to be relieved from the attentions of so shrewd a critic. As a fact, Mr. Newhouse, like Mr. Buckle, has only crystallised into memorable and unanswerable words what the rest of those responsible for the running of the industry are doubtless thinking. Let us hope their clear and brave presentation of the case does not come too late!

Southern Van Ryn Reef.

The Southern Van Ryn Reef G.M. Co., Ltd., has acquired the whole of the assets of the Nigel Van Ryn Reefs, Ltd., consisting of 257 claims situated on the farms Draaikraal and Varkensfontein and adjoining this company's property, and the whole of the plant. As the plant is crushing, this should be a valuable asset for this company.

SIEMENS BROTHERS

& CO., LIMITED

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE,
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

WIRES

Rubber Covered. Gutta-Percha Covered
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

PRIMARY CELLS

Fluid and Dry.

Representative in South Africa :

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams : "SIEMENS."**

THE HALF YEAR'S DIVIDENDS IN DETAIL.

Totals for the Six Months—Comparison with Last Year.

In connection with the statement appearing in our issue of last week, it should be pointed out that the Glynn's Lydenburg dividend of 2½ per cent. was in respect of July, 1919, and the 7½ per cent. declaration was for January, 1920. Through a printer's error these dates became inverted in our last issue. We also regret that the Robinson G.M. Company's dividend was stated to be 5 per cent. This should have read as 1 per cent., the Robinson shares being of £5 nominal value. Since our last list was published the Sub Nigel has announced its dividend, and the completed statement for the half-year for gold mines is as follows:

Witwatersrand Gold Mines.

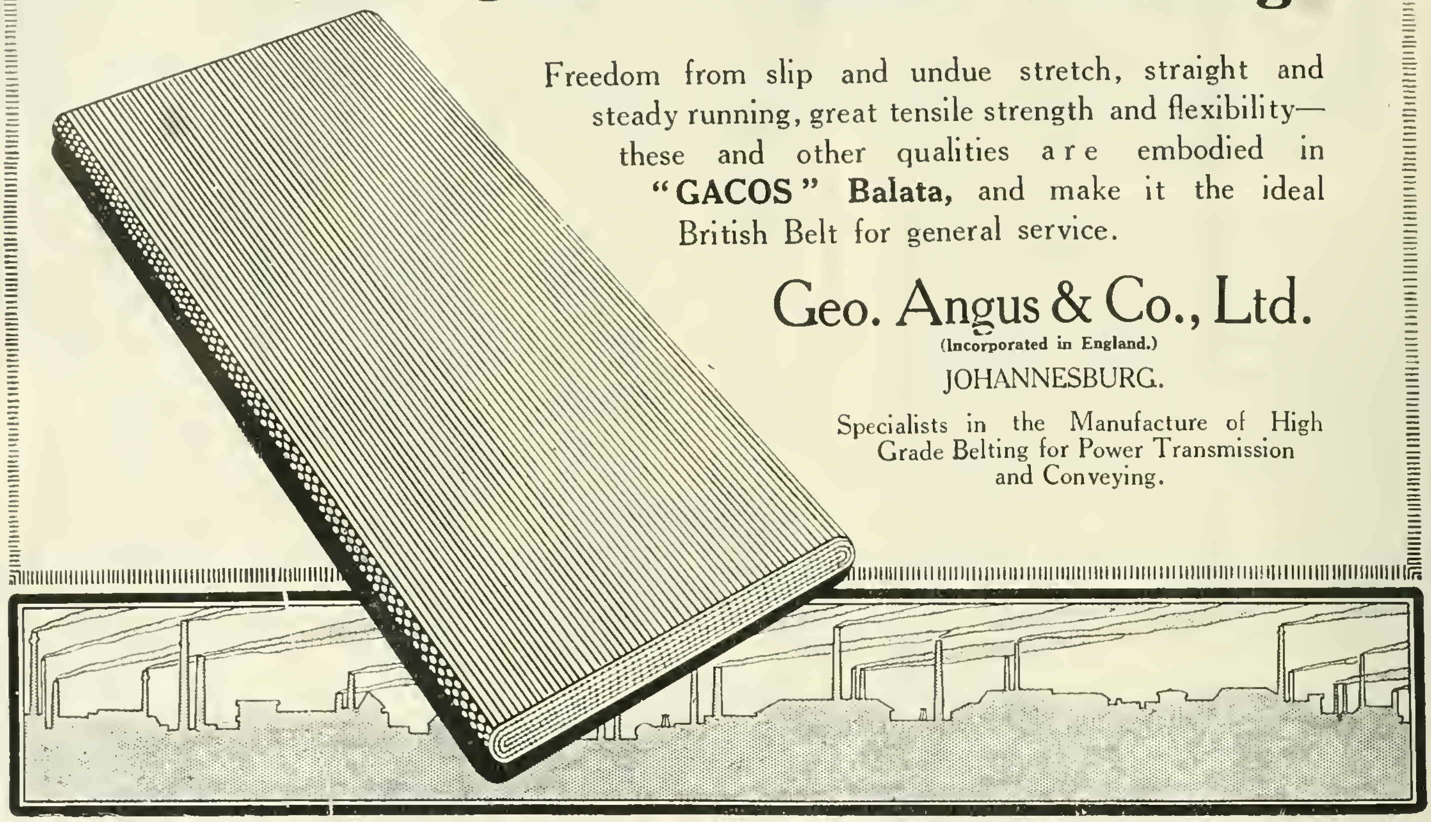
	Date.	Rate per cent.	Capital. £	Amount. £	Total for 1919 Rate %	Total for 1919 £	Rate % 1918
Brakpan Mines	June, 1920	15	834,600	125,190	27½	224,365	32½
	Dec., 1919	15	823,600	123,540			
City Deep	June, 1920	12½	1,250,000	156,250	23¾	296,875	27½
	Dec., 1919	13¾		171,875			
Consolidated Langlaagte	June, 1920	5	950,000	47,500	12½	118,750	5
	Dec., 1919	7½		71,250			
Consolidated Main Reef	June, 1920	6¼	1,247,602	77,975	8¾	109,165	6¼
	Dec., 1919	6¼		77,975			
Crown Mines	June, 1920	27½	940,106	258,529	40	376,042	20
	Dec., 1919	35		329,037			
Ferreira Deep	Mar., 1920	10	980,000	98,000	12½	122,500	22½
	Sept., 1919	5		49,000			
Geldenhuis Deep	June, 1920	2½	585,753	14,644	10	58,575	7½
	Dec., 1919	7½		43,931			
Government G.M. Areas	June, 1920	20	1,400,000	280,000	37½	525,000	27½
	Dec., 1919	20		280,000			
Geduld Proprietary	June, 1920	7½	1,117,229	83,792	—	172,908	11¼
	Dec., 1919	8 shares †per 100		172,908			
Langlaagte Estate	June, 1920	2½	886,500	22,162	15	132,974	12½
	Dec., 1919	7½		66,487			
Meyer and Charlton	June, 1920	50	200,000	100,000	120	240,000	110
	Dec., 1919	70		140,000			
Modder B.	June, 1920	32½	700,000	227,500	92½	647,500	82½
	Dec., 1919	47½		332,500			
Modder Deep	June, 1920	60	500,000	300,000	115	563,095	97½
	Dec., 1919	65		325,000			
New Modderfontein	June, 1920	45	1,400,000	630,000	70	980,000	51⅞
	Dec., 1919	37½		525,000			
New Unified	June, 1920	5	250,000	12,500	10	25,000	10
	Dec., 1919	5		12,500			
Nourse Mines	June, 1920	3¾	827,821	31,043	3¾	31,043	3¾
	Dec., 1919	3¾		31,043			
Robinson	June, 1920	1	2,750,000	137,500	7½	206,250	2½
	Dec., 1919	2½		68,750			
Rose Deep	June, 1920	10	700,000	70,000	25	175,000	17½
	Dec., 1919	17½		122,500			
Springs Mines	June, 1920	5	1,211,736	60,586	—	—	—
Van Ryn	June, 1920	7½	500,000	37,500	12½	62,500	10
	Dec., 1919	7½		37,500			
Van Ryn Deep	June, 1920	25	1,196,892	299,223	–	718,134	45
	Dec., 1919	25		299,223			
	Bonus New States—1 for 8			149,611			
Village Deep	June, 1920	2½	1,060,671	53,033	6¼	66,292	3¾
	Dec., 1919	6¼		66,292			
Witwatersrand	June, 1920	5	469,625	23,481	10	46,962	15
	Dec., 1919	5		23,481			
Wolhuter	April, 1920	6¼	860,000	53,525	5	43,000	6¼
	Oct., 1919	2½		21,500			

Outside Districts Gold Mines.

	Date.	Rate per cent.	Capital. £	Amount. £	Total for 1919 Rate %	Total for 1919 £	Rate % 1918
Glynn's Lydenburg	July, 1919	2½	170,000	12,750	5	8,500	16¼
	Jan., 1920	7½		4,250			
Transvaal G.M. Estates	Mar., 1920	7½	604,225	45,317	3¾	22,658	6¼
	Sept., 1919	3¾		22,658			
Sub Nigel	Dec., 1919	5	775,000	31,250	10	62,500	11⅔
	June, 1920	5		31,250			

Other Dividends.

The following is a list of dividends declared by diamond, coal, base metal, and industrial concerns during the first six months of this year: Apex, 6d.; Anglo-Americans, 1s.; Brick and Potteries, 1s.; Cassel Coal, 1s.; Clydesdale, 1s. 6d.; Kleinfontein Estates, 2s.; Leeuwpoort, 1s.; Monteleo, 2s.; Natal Navigation, 1s.; Pretoria Cement, 1s.; Rand Mines, 3s.; Rand Selections, 2s.; Rooiberg, 1s.; Swazi Tins, 1s.



"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

WM. HODGSON & SONS

(Weighing Machinists) LIMITED,

MANCHESTER - - - - ENGLAND.

WEIGHBRIDGES, WEIGHING MACHINES,

WEIGHTS and SCALES FOR ALL PURPOSES.

Sole Agents In South Africa:—

Geo. CRADOCK & Coy. (S.A.) Ltd.

Box 316. Tel Add. "Ropes" Tel. 539.

SOUTH AFRICA'S COAL OUTPUT IN MAY.

Natal Creates Another Record—Statistics of Coal and By-Products Outputs.

The value of coal produced at pit's mouth in Natal continues to increase, and although the May output of the Natal collieries was, in point of tonnage 16,000 tons below the record output of 306,506 tons produced in respect of March of this year, the value of the Colony's output in May at £181,400 is the highest ever recorded. The price, which has exhibited a progressive increase for some months past, was 12s. 5·85d. per ton, which is 6d. a ton higher than it has ever previously been sold at. These figures clearly show that the demand for Natal coal is increasing and that given adequate transport facilities the export and bunker trades which have been steadily increasing for months past could be made to assume tremendous dimensions. We understand that there is a continuous and unsatisfied demand for Natal coal by steamers at Durban. Within a few months the new deviations should greatly assist the transit of coal to the coast and there is considered to be every reason for a further substantial increase in the Natal output.

The Transvaal output for May was 590,504 tons, valued at £168,825, or 5s. 8·62d. per ton at pit's mouth, and the production of the whole Union was 957,221 tons, or £372,372. The following tables exhibit the salient features of the month's output.

PROVINCE.	No. of Collieries Producing.	Total Coal Sold. Tons.	Total Value Realised at Pit's Mouth. £	Value per Ton at Pit's Mouth. s.	d.
Springs-Brakpan area (Transvaal) ...	5	10,055	10,784	5	4·62
Middelburg area (Transvaal) ...	19	461,511	131,663	5	10·03
Other areas (Transvaal)	12	88,935	23,378	5	3·09
Transvaal	36	590,504	168,825	5	8·62
Cape	5	419	346	16	6·19
Orange Free State ...	4	75,770	21,801	5	9·05
Natal	27	290,528	181,400	12	5·85
Union of South Africa	72	957,221	372,372	—	

Particulars of by-products outputs are:

	Coal Converted into By Products. Tons.	By-Products Produced. Coke. Tons.	Tar. Gallons.	Sulphate of Amonnia. Tons.
Transvaal	620	—	3,595	—
Natal	7,622	1,854	—	235
Union of South Africa ...	8,242	1,854	3,595	235

PERSONAL.

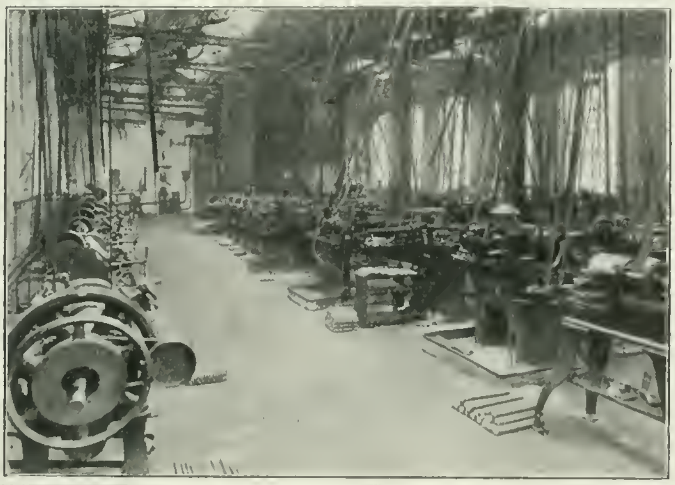
Mr. J. J. Garrard has resigned from the position of consulting engineer to the Transvaal Consolidated Land and Exploration Co., Ltd. It is understood that Mr. Garrard has accepted another appointment in London, where he is now on leave.

* * * *

The officers and council of the Chemical, Metallurgical and Mining Society of South Africa for 1920-1921 are as follow: President, Mr. James Chilton; vice-presidents, Mr. F. Wartenweiler, Mr. G. A. Watermeyer, and Mr. F. W. Watson; hon. treasurer, Mr. J. R. Thurlow; members of council, Mr. H. R. Adam, Mr. C. J. Gray, Mr. C. H. Greathead, Mr. J. H. Johnson, Dr. A. J. Orenstein, C.M.G., Lt.-Col. E. Pam, O.B.E., Mr. J. J. R. Smythe, Mr. J. Watson, Mr. E. M. Weston, Mr. A. Whitby, Mr. H. A. White, and Mr. J. A. Woodburn; secretary, H. A. G. Jeoffreys, O.B.E.

Fertilisers and Phosphates.

In the official *Journal of Industries* for June Dr. Juritz commences a series of articles on fertiliser production and natural fertilisers in the Union, in the course of which he proposes to record some of the facts in this connection gleaned by him during the flying survey undertaken in consequence of the shortage of fertilisers brought about by the War. Among the centres visited was Kimberley, where, it is pointed out, the offal from slaughtering, in the absence of an abattoir, goes to waste, though bones are probably being collected, to find their way ultimately to various bone mills. At the native mine compound visited every ounce of bone was conserved, being ground up within the compound, and put on the lands of De Beers Company, the quantity thus utilised amounting to about 135 tons of bones per annum. The first article also comprises references to the phosphates in the Kuruman and Kenhardt districts.



PHONE 4673. BOX 3162

OSBORN'S
PATENT
"Daly" Tappets and
W. & S. Tube Mill Liner.
WRITE FOR DESCRIPTIVE BOOKLET.
Samuel Osborn (South Africa.), Ltd.,
SHEFFIELD AND JOHANNESBURG.

FURTHER SUCCESSES

—ON—

WAKEFIELD

Castrol Regd

MOTOR OIL

SENIOR & JUNIOR

ANNUAL TOURIST TROPHY

MOTOR CYCLE RACE

All winners used "CASTROL"

C. C. WAKEFIELD & CO., Ltd.:

24-25, OCEANA BUILDINGS,
SIMMONDS STREET,
P.O. Box 2123. **JOHANNESBURG.**

HULSTON'S BUILDINGS,
SMITH STREET,
P.O. Box 1521. **DURBAN.**

Telegrams: "CASTROL."

NATIONAL TRADING CO.,

54-58, CULLINAN BUILDINGS,
JOHANNESBURG.

'Phone 1205 and 1250. Telegrams: "GLORIA." P.O. Box 2762.

SOLE SOUTH AFRICAN AGENTS

QUAKER CITY RUBBER CO., Philadelphia

RUBBER CONVEYOR BELTS.
DANIEL'S SPECIAL P.P.P. PACKING.
AIR AND WATER HOSES.
SHEET PACKINGS.
"IRONSIDES" DRIVING BELTS.
"QUAKER" TYRES AND TUBES.

QUALITY MECHANICAL RUBBER GOODS of every description.

SIRIUS AUTOGENOUS WORKS CO., London

OXY-ACETYLENE
WELDING AND CUTTING PLANTS.
ACCESSORIES.
FLUXES.
GAUNTLETS AND APRONS. &c., &c.

"SIRIUS" LOW-PRESSURE GENERATORS for
EFFICIENCY. ECONOMY. SAFETY.

THE ROODEPOORT UNITED MILL.

Will the Modder East Acquire It ?—A Rumour which is Engaging Attention—The Fate of the Low Grade Batteries—The " R.U.M's " High Duty Plant.

The closing down of numerous low-grade Central Rand mines either on account of unpayability at the present high rate of costs or because of exhaustion means that a large number of stamps and tube mills, in addition to compressors, hauling engines, electrical sets, and other mining machinery, will become idle in the immediate and near future. Inasmuch as the cost of new machinery imported from Europe and America is well-nigh prohibitive at the present time, it is only reasonable to assume that the more modern installations thrown out of commission by the low-grade and expiring mines will find ready purchasers amongst the new mines of the Far East Rand which will be entering the productive stage in the not far distant future.

The Fate of the Mills.

Whilst mining machinery generally is likely to be at a premium for some years to come, interest seems to be focussed on the question of the fate of the idle batteries. This no doubt is due to the fact that the Modderfontein East Company, after bringing its property to a state of development warranting the erection of crushing plant, has found that the cost of purchasing new equipment is so excessive that the board has indefinitely postponed its plans for the acquisition of new plant and has resorted to the expedient of leasing the Apex battery.

The Modder East's Crushing.

The Apex plant has a crushing capacity of 27,000 tons per month, and on this basis is rendering satisfactory service. But it has been realised all along that such a capacity is insufficient for the needs of a proposition of the size of Modder East. The ore reserves of the company constitute a five-years' supply for the Apex plant, and as they are steadily increasing it is obvious that the Modder East directors would be abundantly justified in purchasing or leasing a further battery with treatment plant, provided that such can be obtained in an efficient and modern state and at a price which would be within the company's financial resources.

The Roodepoort United Mill.

Possession of an up-to-date productive plant of its own erected on the Modder East property is clearly a pressing requirement of this, the newest of the Modder propositions, and for this reason it is perhaps not surprising that, during the past few months, the name of the Modder East has been linked with the name of practically every concern possessing an idle mill, or about to possess an idle mill, on the Rand. A little time ago it was rumoured that the company contemplated the acquisition of the Bantjes equipment; later it was suggested that the Simmer Deep-Jupiter plant would supply the company's needs. And now a report, which seems to emanate from usually well-informed quarters, is floating around to the effect that the Modderfontein East will shortly obtain possession of the Roodepoort United's battery and cyanide plant. Whether there is anything in this rumour or not, the fact remains that, although the Roodepoort United Main Reef has of recent years been a most disappointing venture, the equipment of that ill-starred property is of modern design and efficient type and it is probable that at some time or other it will again be commissioned in the service of some company which is able to obtain more gold from its plates and precipitation vats than the Roodepoort United has been able to do.

A Modern Plant.

It may be recalled that crushing commenced at the Roodepoort United in 1888 with 20 stamps, in 1892 10 were added, a further 20 in November, 1894, and 20 in September, 1895, making 70 in all, with cyanide plant; an additional 10-stamp mill (since rebuilt) was acquired with the Roodepoort Deep property. The full complement of 110 stamps and two tube mills, also cyanide and slimes plant (which are erected on the old property) were at work up to August, 1910, when the new mill (which has been erected on the new property acquired in 1909) consisting of 100 stamps (1,900 lbs. each), five tube mills and cyanide plant, started work, but owing to the greater efficiency of the new mill only 80 stamps have been dropped. The plant is driven by electrical power supplied by the Victoria Falls and Transvaal Power Co., Ltd. The old mill has been closed down. This new mill was until the latest plants of the Far East Rand came into operation, the battery with the highest duty on the Rand, *i.e.*, about 20 tons per stamp per day, and it is still to be regarded as a most efficient plant. All along it has been too high powered a plant for a mine like the Roodepoort United, which has had the greatest difficulty in keeping only 80 of the stamps in operation for a portion of the month only. Last December, for instance, 80 of the 100 stamps ran for less than 18 days during the month and the five tube mills were in operation for under 21 days. The company, however, managed to crush 21,200 tons, and there is little doubt that the equipment could handle thirty to thirty-five thousand tons, or even more, per month if it was called upon to do so. It would therefore appear that the Roodepoort United mill would be a decidedly valuable asset to a company situated as the Modder East is with a very substantial tonnage of payable ore in reserve but without a plant of its own.

African Oil Corporation.

Mr. J. E. Mills Davies, the consulting engineer of the African Oil Corporation, Ltd., reports to the directors as follows:—That five drives are being put in at various points around the outcrop on the property. That these drives will be continued in order to constitute a part of the scheme of development which will be decided upon during the course of his next visit. That the oil-shale seam is carrying an excellent working width in each case, and the appearance and quality of the shale more than confirms the good opinion that he has formed of the body, as a result of his outcrop investigations.

MINES DEPT. EXAMS. –Recent Results.

Managers.—42 Certificates out of 55 in S.A. in a recent 12 months. 24 Certificates (1 conditional) 1919/20.
In 1917/1919 passes we lead by 400%.
Eight of our Candidates secured certificates *at first attempt* in January, 1920. Our passes have, on occasion, attained 100%.
Overseers.—Our passes during a recent 6 months were 95%, and only one of our candidates had to sit twice—*a remarkable record.* In January-May, 1920, we secured 19 out of 30 Certificates in S.A. **Surveyors**—In March, 1920 Examination we obtained the only Certificate granted in S.A.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

FURNACES

For all purposes.

50% Saving in Fuel.

COAL, COKE, OIL, GAS, WOOD, etc.

THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

THE SOUTHERN VAN RYN'S NEW SCHEME.

Raising Further Capital to Enter the Productive Stage—An Optimistic Statement.

The Southern Van Ryn Reef G.M. Co., Ltd., has issued an important notice under the heading of "Memoranda for Investors in the Southern Van Ryn Gold and Coal Mine." This notice appears in another portion of this issue, and we would direct attention to this statement which is based by the directors "(1) on their own knowledge of the facts as ascertained in the course of the development of the property up to this date, and (2) on the information conveyed to them by the reports of the company's consulting engineer. They affirm that, to the best of their knowledge and belief, the statement is true—and verifiably true; and they confidently believe that as development proceeds the records of the mine itself will justify their confidence." The Southern Van Ryn is one of the properties around which geological controversy has recently circled, and it is to be observed that in the notice now issued the directors reaffirm their belief in the existence of the Van Ryn Reef as a separate stratigraphical unit from the Nigel. They state that the Southern Van Ryn has greater reef tonnage per claim on the Van Ryn Reef than Modder B. or New Modder or Springs Mines or even than the Government Areas (Modderfontein) Mine, and has a greater tonnage per claim on the Nigel Reef than any other mine had, or has, on that reef, including Nigel Mine itself. The Southern Van Ryn has throughout its claims from the outcrop a third reef, that which is now being mined and giving such rich results on Modder West Mine. All three of them dip steeply about 60 degrees, and in actual practice two feet of reef are taken out clean and stopes are not more than 30 inches. The Southern Van Ryn has therefore a greater aggregate reef tonnage than any gold mine in South Africa, and probably greater than any gold mine in the world.

There are numerous other features in connection with the property which the directors desire to draw attention to. They state, for instance, that the Southern Van Ryn working costs will be at least 7s. 6d. per ton less than those of any mine on the Far East Rand, with the exception of two northern outcrop mines on the same field, and that, being an outcrop mine, is most attractive to workers, both European and native, since it has not only a clean health-record but men lose no time in going to and from their working places in the mine. Furthermore they declare that the company has already 10,000 tons of pay reef almost completely blocked out on the Van Ryn Reef, but the value of this tonnage is not stated. "Development," continues the circular, "is progressing on two levels in a most satisfactory manner, and the main shaft is now being sunk to the third level. The Southern Van Ryn has below the Van Ryn Reef, the continuation of the rich reef which sub-outcrops in its neighbour the Nigel-Van Ryn, where the Director of Geological Survey has identified the reef as the Nigel. This reef is giving high pay assays all along its strike. The Southern Van Ryn has an estimated life of over 100 years on an average crushing basis of 1,000,000 tons per annum. The Southern Van Ryn shares give an estimated profit of over £60 for every £1 invested at to-day's prices, without including returns from the rich Modder West Reef. The company had at April, 1920, over £50,000 cash and has nearly £40,000 worth of plant on the property, and will enter the producing stage in the immediate future."

"But that is not all," continues this memoranda for investors, "the Southern Van Ryn has a producing coal mine on its surface which is actually supplying with excellent coal all its own needs and those of a neighbouring mine and the public as well, at less than half the cost of coal now used on the Rand. These coal rights, which have been acquired on a fair and moderate royalty basis, are capable of supplying all the mines on the Far East Rand, and would thus relieve the congestion of trucks and save high charges for the industry. The coal seam now being mined is ten feet thick. Available geological data indicate that an area of at least 1,000 feet by 5,000 feet contains this great seam of coal. After deducting 30 per cent. for pillars, etc., this area should yield about 5,000,000 tons of coal." The calorific value of this coal is not stated.

A further notice states: In view of the excellent position in which this company now finds itself (to which further reference is made below) the board has decided, on the advice of the consulting engineer, to strengthen the cash resources. The object is to provide for certain contingencies, viz., the acquisition, now under negotiation, of the undertaking of a neighbouring company in return for shares in this company, and, further, to enable it to begin producing profits within the next six months. The board feels that effective recognition should be made of the position of those option-holders and shareholders who from the beginning have maintained their faith in the company's enterprise. Accordingly, it has been resolved to issue up to 100,000 shares of the nominal value of £1 each, thus bringing the issued capital to £438,029. The said 100,000 fully-paid £1 shares are now offered under the conditions and terms of the company's articles of association for subscription at par less 50 per cent. commission in cash payable in ten monthly instalments of 2s. less 50 per cent., that is, one shilling nett per month. Applications from option-holders, shareholders and the public in South Africa must be received at the head offices of the company, 150-153, Stock Exchange, Johannesburg, on or before 15th July, 1920. An extension is allowed for European applicants, who applications will be received at the London office of the company, 3, London Wall Buildings, London, E.C. 2, up to (including) 31st July, 1920. The prospect of bringing this concern to the productive stage within the next few months is certainly attractive, although it is not explained in these notices how this is to be achieved or upon what basis of crushing the company will commence productive operations.

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:

46 Survey Certificates to date, including three Honours Certificates.

Elsewhere One Survey Pass has been obtained to date.

Last two Managers' Examinations combined we secured 15 passes from 19 entries, a truly remarkable record.

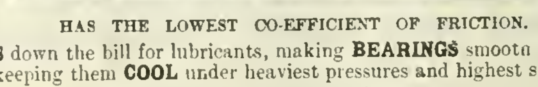
We established a percentage record of passes, January, 1920, Managers' Examination.

We lead with Overseers Passes, 1918 and 1919, combined.

WRITE FOR PARTICULARS AND CLASS TIME TABLE.

TRADE MARK

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.



HAS THE LOWEST CO-EFFICIENT OF FRICTION.

KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.

Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS. Ltd, Johannesburg
Bulawayo and Salisbury.

NEW ISSUE BY THE RAND WATER BOARD.

An Attractive Investment—Gilt Edged Security That Pays £6 3s. 8d. per cent.

A GILT-EDGED security carrying a high rate of interest is something of a rarity even in South Africa, but the new issue of £1,282,000 by the Rand Water Board may safely be so described. The loan bears interest at 6 per cent. per annum payable half-yearly, and is issued at £97 10s. per £100 stock. The yield from the stock is therefore £6 3s. 8d. per cent. per annum, and the principal is repayable at par on June 30th, 1950. This second issue of stock by the Board is made for the purpose of obtaining funds required in connection with the carrying out of the big scheme for obtaining a water supply of 5 million gallons a day from the Vaal River with storage accommodation equal to 20 million gallons a day. This scheme is now well on the way to completion; and when finished it will meet all the water requirements of the Rand and its industries that can now be foreseen.

Terms of Repayment.

The present issue will rank *pari passu* with the Board's current loan of £3,400,000 (4 per cent.) stock, which will be repaid in 1935 out of the redemption fund which the Board is accumulating from year to year in terms of its statutes, and which now amounts to considerably over one million pounds sterling. The stock will be inscribed in books to be kept by the Board at its headquarter offices in Johannesburg, and will be transferable by stock-holders personally, by their attorneys, or by deed. A cumulative sinking fund will be provided, in terms of the Board's Ordinance No. 48 of 1904, to redeem the stock outstanding at maturity. The principal amount will be repayable by the Board in South Africa, 30 years from the date of issue. Application will be made in due course for the listing of this stock issue on the principal Stock Exchanges in the Union of South Africa. The Board's stock is secured on the ordinary revenues of the Board, the reserve fund, the whole of the property of the Board, and on all rates which may be levied by the Board or by the Court under Ordinance No. 48 of 1904 on the mining and municipal values of the whole of the Witwatersrand area. According to the Government Mining Engineer the valuation of the mines at June 1st was about £70,000,000; and the latest municipal valuation was £46,000,000. Apart altogether from the receipts from the sale of water, the revenue is therefore amply secured.

Strong Financial Position.

The present financial position of the Board is a particularly strong one. On the 31st March, 1920, its accumulative sinking fund for the redemption of the existing 1905 stock was £1,183,505, in addition to which the reserve fund contained £68,000, and the renewal of machinery and plant fund over £116,000. During the 1914 session of the Union Parliament, the Rand Water Board Supplementary (Private) Act was passed, conferring upon the Board the right to impound in the Vaal River a quantity of water equal to 20 million gallons a day, with the sole and exclusive right to take, abstract, and use all such water, and, subject to existing rights, to have control over the whole area covered by the reservoir.

The Great Vaal River Barrage.

The Board's impounding works on the Vaal River, situated about 22 miles below Vereeniging, will consist of a barrage of 36 gates, each 25 feet deep and 30 feet wide. The reservoir will impound 13,633,000,000 gallons of water, and will extend for a distance of about 39 miles above the barrage works, the point of abstraction being at Vereeniging. The foundations for the barrage, which were commenced in July, 1916, have been laid, and the piers are now well advanced, all of them being erected to a height of 15 feet, and some of them to the full height required, namely, 35 feet. In December last a contract for the barrage gates was placed on favourable terms with Messrs. Blane & Co., Ltd., the local agents of Messrs. Glenfield & Kennedy, Ltd., and delivery is expected early next year. Good progress has also been made with the other works in connection with the scheme.

Powers and Constitution of the Board.

The constitution of the Board, as well as its powers and general functions, are modelled on the lines of the Metropolitan Water Board (London). Its membership consists of an equal number of representatives of the Witwatersrand Municipalities and of the Transvaal Chamber of Mines; a representative of the South African Railway Administration; and a chairman appointed and removable by the Union Government. An important point to notice is that under the Board's 1914 Act it was provided that the whole jurisdiction of the Board's affairs should be placed under the Union Parliament, and in future, therefore, that Parliament only can legislate in respect of the Board, so as to alter or amend in any way its present powers, functions or operations. All the South African branches of the Standard and National Banks and of the A.B.C. are authorised to receive applications for the stock, free of exchange, and copies of the complete prospectus are obtainable from any branch of those banks or from the Secretary of the Rand Water Board, Box 1703, Johannesburg. The issue, it will be seen, has several attractive features. First, it is thoroughly well secured, having the mines, the municipalities, and railways behind it; second, it offers a splendid return on money invested; and, third, the terms of payment are easy and spread over a year. With everything to recommend it, therefore, the issue is assured of success.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:

KELLY, BURNIE & CO.

Box 5260. The "KELCO" People. Phone 4333.

Corner Polly and Albert Streets, Johannesburg.

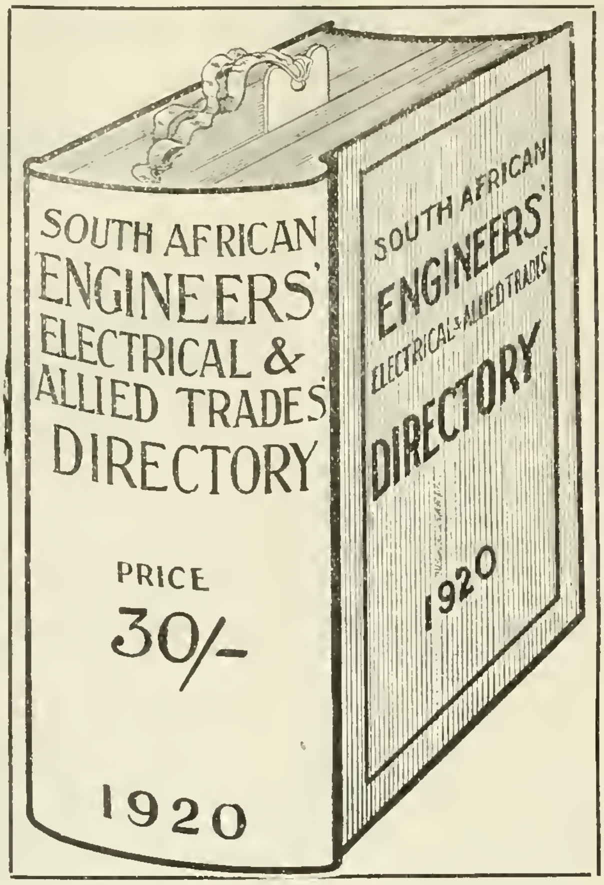
SPECIAL MACHINERY, TOOLS, APPLIANCES and EQUIPMENT

MANUFACTURED TO CUSTOMERS' REQUIREMENTS.

Accuracy and quick delivery guaranteed.

Enfield Machine & Auto Tool Co., Ltd.,

ENFIELD, MIDDLESEX, ENGLAND.



Just off the Press!

The Book You Have Been Waiting For!

THE ONLY DIRECTORY EMBRACING EVERY BRANCH OF THE ENGINEERING, ELECTRICAL, IRON, STEEL, MACHINERY, HARDWARE AND ALLIED TRADES THROUGHOUT THE UNION OF SOUTH AFRICA, RHODESIA, ETC.

SPECIAL FEATURES:

ALPHABETICAL SECTION.

Gives all the essential particulars of **over 600** firms, including the complete Postal, Telegraphic and Cable Addresses, Telephone Numbers, the names of the partners, if any, the exact nature of the business, list of Branches and of Agencies represented. In the case of Companies, it gives the details of the Capital, names of the Directors and other information necessary to a correct reading of their business position and importance.

GEOGRAPHICAL SECTION.

Shows at a glance the firms engaged in the Engineering, Electrical and Allied Trades in the various towns.

OVERSEAS SECTION.

Gives the names of **over 1,000** Manufacturers of Engineering, Electrical, Iron, Steel, Machinery, Hardware and Allied specialities, represented in the Union of South Africa, etc., with names of local representatives.

BUYERS' GUIDE.

Provides at a glance a list of the suppliers of all the manifold requirements of the Engineering, Electrical, Constructional, Railway and Mining Material Trades.

MINING SECTION.

This is a Complete Mining Directory in itself, giving a list of all the Mines—Gold, Coal, Diamond and Metal—in the Union and Rhodesia, with full address and names of Managers, Resident Mechanical and Electrical Engineers and other Chief Officials. Also an Alphabetically arranged list of the Chief Mine Officials. Complete list of Mining Concerns in the Union of South Africa and Rhodesia.

GOVERNMENT SECTION.

Complete personnel and addresses of Railways, Department of Mines and Industries, Public Works Departments, Inspectors of Mines, Machinery and Factories, White Labour Departments, Mining Commissioners, etc., throughout the Union and Rhodesia.

MUNICIPAL SECTION.

Names of Town Clerks, Treasurers, Engineers and Electrical Engineers and Managers of Power Supply Stations.

FACTORIES, SUGAR MILLS, TECHNICAL SOCIETIES, Etc., Etc.

Published by the South African Mining and Engineering Journal, 176-180, Stock Exchange Buildings (Telephone 913), Johannesburg.

To the Manager, S.A. Mining and Engineering Journal, Johannesburg.

Please send $\frac{\text{me}}{\text{us}}$ ....cop...... of the S.A. Engineers', Electrical and Allied Trades Directory, for which enclosed find $\frac{\text{Cheque}}{\text{Postal Order}}$ value..........................

Name.. Address..

THE PEARL BITUMEN COMPANY'S PROSPECTS.

A New Madagascar Enterprise—A Promising Outlook.

The Pearl Bitumen Transport and Trading Co., Ltd., has just recently been floated with a capital of £30,000 in 5s. shares and with a directorate consisting of Messrs. T. M. A. Zambusch (alternate, Dr. Brinton), W. R. Findlay, T. P. Waites (alternate, George D. Alexander), and J. McGibney. This company has secured some very valuable properties and contracts in the Island of Madagascar, chief amongst which are some very extensive deposits of bitumen, for which there is a constant and large demand in South Africa, France, the East generally, and in other areas favourably situated from a geographical point of view. Large fortunes have been made of recent years in Trinidad out of bituminous deposits, and the Pearl Bitumen Company is considered to have an "asphalt" area which compares most favourably with that of any similar proposition in the world. The prospectus states:

The company holds eighty square miles of ground on the western side of the Island of Madagascar. The title under which the ground is held at present is the usual Permis de Recherche in the name of Mr. T. P. Waites, a director, in trust for the company. It is, however, intended to convert the property into a mining area as soon as the necessary legal formalities can be complied with. A mining area title is unassailable, and ground held under same is free from licences and the payment of all other taxes for a period of two years from the date of issue. The valley in which the company's ground is situated has been examined by such eminent engineers as Messrs. Thomas Draper, David Levat, H. F. Burls and Dr. J. McClelland Henderson, who all report the existence of bitumen of high quality and in great quantity. Mr. Waites, from whom the company purchased the property, specially selected same as, in his opinion, it carried inexhaustible deposits of bitumen and was also the most suitably situated for economic working and transport. A navigable river traverses the company's property and renders transport of the bitumen to the river's mouth at Benjavilo cheap and expeditious. Benjavilo is not at present a regular port of call for steamers, but Mr. W. H. Dufty, who resided there for several years, reports this section of the coast as free from reefs of any kind and perfectly safe for steamers to approach. There are numerous 20-ton schooners and large tugs available at Benjavilo to carry the bitumen to the regular ports of Morandava and Majunga. Benjavilo itself is likely to become an important port on account of its position and natural advantages. Native labour is abundant and readily available, thus assuring low working costs. The Portuguese Government contemplates establishing a bi-monthly service of steamers between Delagoa Bay and Madagascar, and with other existing regular services freightage may be expected. If anticipations are realised, sufficient bitumen should be turned out by the company to supply not only the Union of South Africa, but other nearby markets. Mr. Waites brought samples of the deposits from the company's property, which were analysed by Mr. James Gray: the analysis showed 64·3 per cent. of pure bitumen free from fixed carbon. The foreign matter being coarse sand is easily and cheaply eliminated and leaves a pure bitumen of excellent quality and highly valued for commercial purposes. Mr. Gray expressed the opinion that the quality was excellent. Prices of bitumen vary according to the degree of purity; present values in Johannesburg are from £25 per ton for 45 per cent. pure to £75 per ton for 100 per cent. pure. The cost of landing the material at Delagoa Bay and Union ports is estimated at £7 10s. per ton at current rates, and this figure is expected to be considerably reduced when normal shipping conditions again obtain. After making ample allowance for all overhead, financial and working expenses, it will thus be seen that substantial profits can be earned. South Africa imported 8,000 tons of bitumen and substitutes therefor during 1916, but in normal years 12,000 tons may be taken as a conservative estimate. The company's property is within easy reach of Delagoa Bay, giving an unbeatable geographical advantage over any other source of supply. From the foregoing the company's prospects in the bitumen business can easily be calculated. Mr. Waites reported uranium ore as occurring in quantity on the remainder (forty square miles) of the company's holding. Samples of this ore were analysed and showed exceptional richness. Uranium ore commands a high price in the Home markets, the latest quotation being £400 per ton. Indications of oil, strikingly similar to those of the celebrated Baku oil fields in Russia, are also reported as occurring on the company's property, but while uranium, oil and other prospects will not be overlooked, it is the intention of the board to devote its energies to the immediate development of the bitumen, for which there is an extensive and ready cash market and only moderate capital expenditure involved. The payment to the vendor by the company was made entirely in shares, which shares are not negotiable for twelve months from the date of the registration of the company, and so confident is the vendor of the success of the company that he waived his right to dividends on his shares until 25 per cent. had been paid on the 20,000 shares underwritten by the directors. Mr. Waites, who is looking after the interests of the company in Madagascar, has secured for the company a valuable contract which should itself bring in a very substantial revenue.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

USE

"PORPOISE"

BRAND

ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by

South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

SOUTH AMERICA

HEAD OFFICE:
MONTREAL, CANADA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE	BRAZIL	URUGUAY
Buenos Aires.	Rio de Janeiro, Santos, Sao Paulo.	Montevideo.
VENEZUELA	COLOMBIA	BR. GUIANA
Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.	Barranquilla.	Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON	PARIS	NEW YORK	BARCELONA
Princes St., E.C.	28, Rue du Quatre-Septembre.	68, William St.	Plaza de Cataluna 6.

THE ROYAL BANK OF CANADA

CAPITAL PAID UP & RESERVES $35,000,000
ASSETS OVER - - - - $500,000,000

THE WEEK IN THE SHAREMARKET.

Further Liquidation—Gold Stocks Easier—Quotations Ex Dividend.

HEAVY liquidation has further depressed the market during the past week and marked declines in most stocks, gold, diamonds and tins alike, have to be recorded. Six months ago shares rapidly gained their cum-dividend quotations, but the close of this month has witnessed nothing of such a satisfactory nature; in fact, several stocks have lost not only their dividend quotations but are fractionally less over and above the depreciation due to dividend declarations. The exception has been provided by Pretoria Cements which, with a four-shilling dividend, have been dealt in at £5 11s. 6d. Modder Easts have been most disappointing and have declined to 21s. 6d., whilst the three years' options, after being quoted at three-farthings, a halfpenny and one-farthing, have ceased to possess any value at all. The dividend list appears in full in another portion of this issue and contains several encouraging features, but all the same this half-year's declarations have fallen flat and have aroused no enthusiasm. Diamond stocks are substantially weaker, Crowns being dealt in at 7s. and Frank Smiths at 12s. 9d. The five-shilling shares of a new concern styled the Pearl Bitumen Company have been favourably received on the market and are quoted at 6s. 9d. A short article dealing with the position and prospects of this company appears in another portion of this issue. For the rest, base metal, oil and coal stocks are dull and uninteresting and Transvaal Silver and Base Metals with options continue to be dull and depressed.

	Fri., 25th.	Sat., 26th.	Mon., 28th.	Tues., 29th.	Wed., 30th.	Thurs., 1st.
Anglo-Am. Corp.	32 6	31 9	31 0*	31 9	31 6	30 0
Bantjes Cons.	2 9†	2 9†	2 9†	—	2 3*	2 4*
Brakpan Mines	—	—	—	48 0*	48 0*	—
Breyten Collieries	8 0*	8 0*	8 0*	—	8 0*	—
Brick and Potteries	—	5 6*	—	5 6*	—	—
British South Africa.	—	15 0*	—	15 0*	15 0*	—
Bushveld Tins	—	—	1 6†	—	1 6†	1 6†
Cassel Coals	—	35 0†	—	—	—	—
Cinderella Cons.	4 6†	4 6†	—	4 6†	4 6†	4 0†
City and Subs	5 0*	5 0	5 0*	5 0*	5 0*	5 0*
City Deeps	46 0b	46 0*	47 0†	44 6*	44 3*	—
Con. Diamonds	—	—	30 0*	—	31 3*	—
Clydesdale Colls.	—	24 0*	24 0*	24 0*	—	—
Con. Langlaagtes	—	—	—	15 0	—	—
Con. Main Reefs	11 3*	12 0	12 0*	12 0	12 3†	10 3*
Coronation Freeholds	1 3*	1 3*	1 2*	1 2*	1 2*	1 2*
Crown Diamonds	7 6*	7 9	7 6*	7 6	7 0*	7 0
Crown Mines	40 0*	—	—	40 0*	40 0*	38 0*
Daggafontein Mines	7 0*	7 6*	7 6*	8 0*	8 0*	8 0*
East Rand Coals	2 3*	2 6†	2 4	2 3*	2 3*	2 3*
East Rand Deeps	1 0†	—	1 0†	1 0†	1 0†	0 6*
East Rand Props.	5 7*	6 3*	5 6*	6 0*	5 10*	5 9*
Eastern Golds	1 0*	—	1 0*	—	1 0*	1 0*
Frank Smith Dmds.	13 6	13 6	13 6	13 6	13 0	12 10
Geduld Props.	37 9*	37 6*	37 6*	37 6*	38 0*	38 0†
Ginsbergs	—	1 0*	—	1 6*	—	1 0*
Glencairns	—	1 0*	1 0*	1 0*	—	1 0
Govt. Areas	83 9	83 6b	82 6	83 0	81 9	77 0*
Hume Pipes	22 9	22 9*	22 9*	—	22 6*	22 6
Jhb. Bd. of Ex.	38 0*	37 6*	37 6*	37 6*	37 6*	38 0*
Jupiters	2 0*	2 0*	2 0*	2 6	2 0*	2 3*
Klerksdorp Props.	2 0*	—	—	2 0*	—	—
Knights Centrals	3 6†	3 4	3 4*	3 4*	3 3	3 3*
Knights Deeps	—	—	4 0*	4 0*	4 0*	—
Kaalfonteins	0 6†	0 4*	0 46	0 4*	0 4*	0 4*
Lace Props.	8 9*	—	8 9*	8 9*	8 9*	8 9*
Leeuwpoort Tins	16 9*	17 6*	17 9	18 0	16 9*	17 3*
Lydenburg Farms	7 3*	7 6*	7 0*	7 3*	8 0†	7 6*
Middelvlei Est.	1 3*	—	—	1 3*	—	—
Modder B.'s	121 3*	120 0b	121 3†	121 3†	115 0*	110 0
Modder Deeps	46 6*	47 6	47 0*	47 3	46 9	44 3
Modder Easts	22 9	22 10½	22 9	21 9	21 4½	21 3
Do. Opts. (3 yrs.)	0 11	1 0	0 9	0 2	—	—
Do. Opts. (4 yrs.)	5 10*	7 0	6 3*	5 5	5 9	6 0
Modder Wests	11 6	13 0*	13 6*	13 6*	13 6*	13 6*
New State Mines	26 6*	26 0*	25 6a	25 0*	—	—
Natal Navig. Colls.	—	22 6*	—	22 6*	—	21 6*
National Banks	—	—	—	260 0†	265 0b	260 0*
New Boksburgs	—	1 7	—	1 8	—	1 0*
New Eland Dmds.	—	65 0†	62 6*	62 6*	—	62 6*
New Geduld Deeps	1 7	—	1 7*	—	—	—
New Heriots	—	—	5 0†	—	—	
New Kleinfonteins	6 6†	5 9*	5 6*	5 9	5 3	5 0*
New Modders	68 0	69 0	68 9	69 6	69 0	65 0
Pretoria Cements	106 0*	107 0*	109 0	111 6b	112 6	106 6*
Princess Estates	0 6	—	—	—	0 6*	0 6*
Rand Nucleus	1 2*	1 2*	1 2*	1 2*	—	—
Randfontein Deeps	5 0*	5 6*	—	5 6*	5 0*	4 1*
Randfontein Est.	—	16 6	16 6*	15 6	15 0*	15 3*
Roberts Victors	—	14 0	13 0*	13 0*	13 0*	
Rooibergs	7 0*	7 0*	7 0*	7 0*	7 0*	7 6†
Roodepoort Uniteds	1 0†	1 0†			0 6†	0 9†
Ryan Nigels	3 3*	3 3		3 3*	—	—
Rouxville Dmds.	20 0	21 0	25 0	24 0	23 0*	24 6a
Simmer Deeps	1 0*	0 9†	0 6	0 3*	0 9†	—
S.A. Lands	4 1*	4 0*	4 2*	4 3*	4 0*	
Springs Mines	33 0	34 0	34 3	34 6	33 9	30 0
Sub Nigels	13 6	12 9*	13 3	13 3	—	11 9
South Van Ryns	6 6	6 9*	7 6	7 0*	7 3*	7 6
S.A. Townships	9 6*	10 0	10 6	10 0*	10 3*	
S.A. Alkali	21 0*	21 0*	22 0	21 6	22 0*	20 6*
Trans. G.M. Est.	10 0†	8 0*	9 0*	9 0	9 0	9 0*
Transvaal Silvers.	40 0†	30 0†	40 0†	32 6*	32 6*	33 0
Do. Options	12 6b	14 3*	—	20 0†	—	—
Tudors	1 0†	1 0†	0 6†	1 0†	—	0 6†
Van Ryn Deeps	82 0	81 0*	80 0*	82 0†	82 6b	77 0
Van Dyks	1 0*	1 3*	1 0*	1 0*	1 0*	1 0*
Village Deeps	—	12 0†	8 9*	8 9*	8 9*	—
West Rand Cons.	—	—	3 6*	3 6*	3 6*	3 6*
Western Rand Est.	3 0*	3 0	3 0*	3 0*	3 0*	
Witbank Colls.	42 6*	—	—	42 6*	—	—
Wit. Deeps	8 0†	8 3†	7 9†	7 0†	—	—
Wolhuters	3 0*	3 4*	3 3*	3 0*	3 0*	—
West Springs	13 7½	13 6	13 6	13 7½	13 3	13 3
Do. Options	1 0a	2 0†	1 6	1 3	1 2	1 0*
Union 5 per cent.	£98½	£98½*	£99	£99½	£99¾	£98¾
Zaaiplaats Tins	6 10*	6 11*	6 9*	7 0	6 10*	6 9*

*Buyers. †Sellers. aOdd lots. bEx London.

'INVESTIGATE THE EFFICIENCY
OF
"BRITANNIA"
JACK HAMMERS

THEY WILL SAVE YOU
50% on your Steel Bill,
40% in Air Consumption.
Your Repair Account will almost disappear.
Let me give you a demonstration.
"CLIMAX SAM."

THE CLIMAX ROCK DRILL AND ENGINEERING WORKS, LTD.,
SOUTHERN LIFE BUILDINGS,
JOHANNESBURG.
Phone 2190. Box 2303.

THE BRITISH FLOTTMANN DRILL Co., Ltd.

(Successors to THE FLOTTMANN ENG. CO., LTD.),

ALLENSBANK WORKS, CARDIFF.

Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Phones 2596-7.

Telegrams: "DELTA."

THE SUB NIGEL, LIMITED.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-Second Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on FRIDAY, 22nd OCTOBER, 1920, at 11.30 in the forenoon, for the following purposes:—

(1) To receive and consider the Reports of the Directors and Auditors, the Balance Sheet as at 30th June, 1920, and Statement of Income and Expenditure for the year ended 30th June, 1920.
(2) To elect two Directors in the places of Lieut.-Colonel F. Leslie Brown, D.S.O., and Mr. C. Hely-Hutchinson, who retire by rotation, but are eligible and offer themselves for re-election.
(3) To appoint Auditors for the current year, and to fix the remuneration for the past year's audit.
(4) To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 9th to 22nd October, 1920, both days inclusive.

By Order of the Board,
New Consolidated Gold Fields, Ltd., Secretaries.
Per A. C. GRANT.

Head Office: Consolidated Gold Fields Buildings,
Simmonds Street, Johannesburg, June, 1920.

THE SUB NIGEL, LIMITED.

(Incorporated in the Transvaal.)

DECLARATION OF DIVIDEND NO. 15.

NOTICE IS HEREBY GIVEN that a Dividend of five per cent., being 1s. per share on 775,000 shares of £1 each (fully paid), amounting to £38,750, has been declared for the six months ending 30th June, 1920, payable on or as soon as possible after 12th August, 1920, to Shareholders registered in the Books of the Company on 30th June, 1920.

The Transfer Books of the Company will be closed from the 1st to 5th July, 1920, both days inclusive

The Dividend will be payable to Shareholders on the South African Register by Warrants to be issued from the Head Office of the Company in Johannesburg, and to Shareholders on the London Register by Warrants to be issued from the London Office of the Company.

By Order of the Board,
New Consolidated Gold Fields, Ltd., Secretaries.
Per A. C. GRANT.

Head Office: Consolidated Gold Fields Buildings,
Simmonds Street, Johannesburg,
21st June, 1920.

The Simmer & Jack Proprietary Mines, Limited.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-Second Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on FRIDAY, the 24th SEPTEMBER, 1920, at 11 o'clock in the forenoon, for the following purposes:—

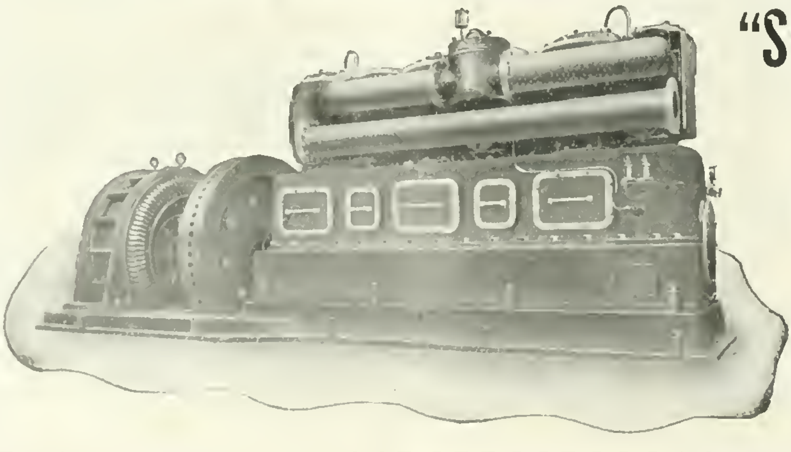
(1) To receive and consider the Reports of the Directors and Auditors, the Balance Sheet as at 30th June, 1920, and Statement of Income and Expenditure for the year ended 30th June, 1920.
(2) To elect two Directors in the places of Lieut.-Colonel F. Leslie Brown, D.S.O., and Mr. C. Hely-Hutchinson, who retire by rotation, but are eligible and offer themselves for re-election.
(3) To appoint Auditors for the current year, and to fix the remuneration for the past year's audit.
(4) To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 11th to 24th September, 1920, both days inclusive.

Holders of Share Warrants to Bearer intending to vote at this Meeting must comply with the regulations concerning the issue of Share Warrants.

By Order of the Board,
New Consolidated Gold Fields, Ltd., Secretaries.
Per A. C. GRANT.

Head Office: Consolidated Gold Fields Buildings,
Simmonds Street, Johannesburg, 28th June, 1920.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessibility, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

June a Bad Month—Chamber of Mines Report—Mine Trading—Probable Developments—Iron, Steel and Non-Ferrous Metals in Excellent Demand—Electrical Goods—Timber and Building Trade—Trend of Affairs—Turps Down £3 a Case in New York.

The great majority of merchants must be thankful that such an unsatisfactory month as June is a thing of the past, as business has been bristling with difficulties and pitfalls. All these have been pretty well focussed in the report of the Chamber of Mines, promulgated by the president, Mr. H. O. Buckle, on Monday, the 28th inst. Such a drastic report has steadied business and financial affairs, as it has given an insight into the future, therefore more favourable hopes are entertained for July trading. Fortunately, our merchants' financial affairs are sound, so far as the mining material section of the community is concerned. It would be strange if it were otherwise, as stocks are anything but plentiful, and there has been a gradual appreciation of those on hand. There has been a little rift in the lute as regards galvanised roofing iron, which was locally depressed owing to extra shipments arriving in quick succession, and some had to be thrown on the market on account of financial reasons, as the banks were not too kindly disposed as regards overdrafts. However, this was only temporary, and things have practically righted themselves, simply because the oversea rates come even stronger. The soft goods merchants are not in such a happy frame of mind, although a cable arrived from Bradford on Monday stating there was no slump, although high-class wool had receded 20 per cent., but others continued firm. Factory operators had been granted 10 per cent. advance in wages, and were demanding a further 40 per cent. As compared with this, there is a general attempt at marking down prices in the Johannesburg shop windows, especially now the sales are on, but it must be admitted that for genuine honest stuff the cheaper quotations are few and far between.

MINE TRADING.

In consequence of the Transvaal Provincial Division having recently decided that the method adopted by the industry for supplying its native employees with certain necessaries of clothing at cost price amounts to carrying on a trade, and was not in accordance with law, it has been stopped. The report proceeds to say that sales are, however, still taking place at the Native Recruiting Corporation's store at Newtown to such native employees as care to come there. If it is also found that this privilege is appreciated, it will become necessary to consider whether means shall not be devised to extend it to natives on more distant mines. Furthermore, this is simply an attempt, so it says, to give to the natives that relief against high prices which is given to European employees by means of increased wages, the latter method not being practicable in the case of the native, because many mines cannot stand the expense. Having received a hint that there is more in this paragraph than meets the eye, a visit was made to the chief office of the corporation in town, and also to the store at Newtown. Every courtesy was shown by the energetic staff, but no news was obtainable; however, it is very likely that expansion will proceed. But as to how and when, it may not be so difficult to piece the various rumours together; in the meantime, more cannot be said, although it is not improbable that some information may be forthcoming next week.

IRON, STEEL AND NON-FERROUS METALS.

There is a little bright news as regards the bar iron and steel trade. The firm which imported a quantity of iron, steel, copper, brass and other non-ferrous metals from the British Minister of Munitions have practically sold out the first shipments, and are now selling to arrive for future lots. This was all purchased on a rising market, and, being such high-class goods, the demand was great. To anyone interested in non-ferrous metals it is a treat to inspect the beautifully-made and finished-off materials of the various kinds. Apart from the original cost, the South African railage has risen from 25 to 33 1-3 per cent. on hardware from the coast. There has been a big demand for local and imported bar iron and steel from Delagoa Bay, Rhodesia, Belgian Congo and different parts of the Union. An extra demand has come along from the road-wagon builders of the Western Province, including the Paarl up to the Robertson districts of the Cape. The natural supplies for these places is Capetown, but evidently iron and steel are anything but plentiful at the coast, and our prices for Dunswart and Vereeniging manufactured iron and steel are quite reasonable as compared

OXY-ACETYLENE
WELDING AND CUTTING PLANT MANUFACTURERS.
Complete Equipments.
McGOWAN, WILD & CO.,
"ECONOMIC" WELDING BLOWPIPE, the most
Efficient and Economical on the market.
Suppliers to the Trade of all Accessories for Welding and Cutting.
OXYGEN-PRESSURE-REGULATORS, CAST-IRON WELDING STICKS, FLUXES for Cast-Iron, ALUMINIUM, BRASS, COPPER, PURIFYING MATERIAL, TUBING, Etc.
Stockists : JENKINS & CO., Greenmarket Square, CAPE TOWN.
Sole Representatives for South Africa :—
MACLACHLAN & CO.
ATHENIAN CHAMBERS, SHORTMARKET ST., CAPE TOWN.

ALMOST
2,000 TONS IN STOCK
Dunswart, Vereeniging and
Imported Iron and Steel, etc.
Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.
STOCK SHEETS ON APPLICATION.
M. BROWN, 180, Main Street,
JOHANNESBURG.
Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address : "MAUBROWN," Johannesburg.

with the imported goods. The Vereeniging output for last month was about 30 per cent. up, but that is not sufficient to cope with the increased demands. Quotations for 3lb. hammers are 4½d. lb.; solid steel, 7½d. lb.; hollow, 1s. to 1s. 1d. Brass rods, 2s. 6d.; ditto plates, 2s. 9d. lb.; shafting, 7½d. lb.; wire nails, 1in., 65s.; 1½in., 60s.; 2in. and 2½in., 55s.; 3in., 4in. and 5in., 52s. 6d. Small rounds in mild steel are very scarce indeed, and small squares are almost unobtainable. Engineering shops are fair, but not exactly busy.

ELECTRICAL GOODS.

The tendency in electrical materials is for prices to remain stationary or to go slightly lower. Lamps are fairly plentiful at 28s. wholesale and 33s. to 36s. retail. Lamp holders are about 20s. to 21s.; adaptors and ceiling roses are still unobtainable. Tubing is firming up and is ruling at 32s. to 35s.; wire, single, 1-18, 25s. to 28s.; 3-22, 27s. 6d. to 30s.; 3-20, 32s. 6d. to 35s.; 7-22, 42s. to 45s.; 7-20, 55s. to 60s.; 7-18, 75s. to 80s. Town and country business is satisfactory, the only trouble being the difficulty in getting materials, for some of which almost any price is gladly offered. Fair consignments of electrical materials are now expected weekly, but on account of the large orders already on hand for same it is not expected that these new shipments will cause much reduction in prices. One leading dealer informed us that during the past week a buyer had arrived from Kimberley who was prepared to take up many of his lines at much enhanced prices on those currently ruling. Reef buyers are also in the market trying to snap up sundries regardless of price.

THE TIMBER AND BUILDING TRADE.

The hardwood trade is quieter and some prices are easier, only because stocks in places are heavy and cannot readily be shifted, as the furniture makers have been less busy during the June month. Burmah teak, 32s. 6d to 35s. per cube; American and Japanese oaks, 2s. foot: clear pine, 2s. to 2s. 3d.; 3-ply, 8d. to 1s. 3d., according to the woods. Poplar and oak are scarce; deals, 3 x 9, and scantlings are very scarce indeed—in fact, one cannot remember when they were ever so scarce before, excepting in the old wagon days when the Vaal River was in flood. But shipments are very handy now, which should relieve the position in the next week or so. Prices range about 2s. 3d. for deals and 2s. for scantlings. Roofing iron is well stocked and is cheaper here than the new landed costs under the latest cable quotations. The price is 1s. 6¼d. for fair quantities, but less for large orders and spot cash. A peculiar case was heard at the Rand Criminal Sessions on Tuesday, when the secretary of the Master Builders' Joint Board at Benoni wrote to three persons demanding from them £15, £10 10s., and £5 respectively. In his summing up to the jury Mr. Justice Ward pointed out that question of the colour bar, the standard of wages, and the membership of trades unions, serious as they might be from a public point of view, were irrelevant in the case. The points to be considered were: Had there been a breach of the statute? Were the letters sent? Did they contain threats? Was there reasonable or probable cause? The first point was admitted. On the second he quoted the evidence of one witness who said that the choice had been given of the lesser of two evils, which his Lordship thought was similar to a burglar pointing a pistol at the head of a man and demanding his purse or his life. On the third point he suggested the parallel of a wealthy man receiving a letter asking him to give money to charity, and if he did not promise, to blow his brains out. The jury, after an absence of 15 minutes, brought in a verdict of guilty by a majority of eight to one, with a recommendation to mercy in consideration of the fact that accused was acting as a secretary of his association. His Lordship passed sentence of one month's imprisonment, to be suspended for six months, and in doing so said it was a good thing that in this case the members of the Board should know what they are entitled to do. "In my opinion," he added, "they do not seem to have known this. This is the first case of its kind, and, naturally, I am inclined to take a lenient view. If a similar case occurs the matter will be treated very seriously." It is understood that this matter has been taken very seriously by the building trade. However, it stands to reason that threats cannot be made by an individual or individuals, whether they be Trade Unionists or otherwise. For example, a name can be put on the black list of the Licensed Victuallers' Association; this has to be done by the police under the authority of the Magistrate. Again, the Sheriff's officer has to turn a man out of his house, but not a private individual, such as a landlord or his agent. As this was the first case, it seems to have been very generously dealt with by the jury and Judge.

THE TREND OF AFFAIRS.

Undoubtedly the president of the Chamber of Mines is getting down to bedrock as to the gold mining industry, and that is the reason, as previously remarked, why the business men of the town are glad to know where we are. He said that the Chamber had, in addition to the ordinary annual contributions to various deserving objects, agreed to contribute £25,000 towards the building fund of Witwatersrand University, and had made a considerable grant by way of loan to assist the technical and scientific societies to provide themselves with a common meeting-place. Then he emphasised the great fact of this being an opportune time to point out to other possible applicants that the mining industry was no longer, and was not likely to be in the immediate future, in a position to meet any demands other than those which its own employees and the Union Provincial and other local Governments had already made upon them. The Profiteering Act will come out shortly, but the farmers at Potchefstroom have taken time by the forelock and passed resolutions that no mealies be sold at less than 30s. per bag. As regards the loaf, the Government have been able to arrange freight for 10,000 tons of Canadian flour at 90s., and the High Commissioner thinks he can get a further 20,000 tons of similar flour, and the Government has practically made up its mind to purchase it. In consequence of this the price of wheat has fallen to 80s. from an average of 95s. Colonel Creswell and Sir Thomas Smartt expressed their appreciation of the Government's action. The property market in Johannesburg has undoubtedly a better tone—perhaps not in values at present, but this will come, as the demand for houses is greater than ever. The Economic League is still amongst us, and during the month of June the ground was very favourable towards all kinds of economy. Business in secondhand material is at present distinctly quiet. Fair stocks have accumulated, and further consignments are expected by the middle of July. Secondhand iron is 1s. 3d. to 1s. 4d., and deals, when obtainable, are up to 1s. 6d. a foot. Petrol is exceedingly difficult to get, and according to the best experts we are only on the eve of the shortage. A special article was promised, but unfortunately it has failed to materialise. The latest cable from Japan is that prices are up 100 per cent. since the representatives here took orders for that country. Turps are down £3 a case in New York; when the new consignments arrive they should come out at £8 a case for two 4's. The American indent people are still offered plenty of business, but very little can be taken, as orders will not be accepted for steel plates or rails. A few orders have recently been taken for electrical cables. The shipping coming from England is fairly well filled with cargoes, but cargoes from South Africa to Britain are very poor, and at the best very erratic.

With much regret we have to record the death this week of Mr. C. H. Wilkins, of the engineering and mining material firm of C. H. Wilkins & Co., of Johannesburg. Mr. Wilkins was well known for many years on the Rand and had built up a very promising business when his health gave way, and he died at the early age of 45. The business will be carried on as usual, Mr. Wilkins having made all the necessary arrangements therefor during his illness.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries

VOL. XXIX., PART II. JULY 10, 1920. [No. 1502.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**
Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 445
Topics of the Week:
The Currency Report 447
The Half-Year's Dividends 449
Latest News from the Diamond Mines and Fields ... 450
Silver and Lead Prices in World Market 451
The Nickel Occurrence in the Barberton District ... 453
Diamond Returns for May Month 454
The June Output: Group Returns 455
Six Months of Gold Winning 457
The Week in the Sharemarket 463
The Komati Goldfields: A Retrospect—III. 465
Industries for Returned Soldiers 466
Trade and Industries Section:
The Week in the Mining Material and Engineering Trades 467
Company Meetings: New Steyn Estate Gold Mines; Sacke Estates and Mining 468

Notes and News.

Historic Mine in the Market.

Our readers may have noticed from our advertising columns that the old Langlaagte Proprietary, belonging to the late M. Jaques Lebaudy, the famous "Emperor of the Sahara," is once again up for sale. The mine has had quite a romantic history and was one of the earliest producers on the Rand. Lebaudy being now dead, his executors have instructed the Johannesburg Board of Executors to offer the property to public tender. Doubtless, it will be acquired by the neighbouring Crown Mines, which is in the best position to work it.

* * * *

The Late General Gorgas.

Many on the Rand have learned with deep regret of the death in London of General Gorgas, who made his name in connection with the Panama Canal. His triumphs over the yellow fever and his successful carrying to fruition of that great scheme are matters of history. His subsequent visit to the Rand on the invitation of the mines was fraught with far-reaching good to the sanitation of the industry, and it may be recalled that Col. Orenstein, who has done so much to put into effect the recommendations of General Gorgas, was one of the latter's lieutenants at Panama, and came here at the instigation of his chief. It is gratifying to note that the British Government vied with that of the United States in heaping honours on General Gorgas for his distinguished services to humanity.

* * * *

The Certificated Engineers' Annual Dinner.

The revival of the annual dinner of the Association of Certificated Mechanical and Electrical Engineers last Saturday night was one of the most successful functions of the year. Mr. Innes presided and Mr. Kenneth Austin, the indefatigable honorary secretary, did not spare himself in his efforts to make the evening an outstanding success. Speeches were delivered by Mr. Buckle, the President of the Chamber of Mines, by Mr. E. G. Izod, by Mr. Chappell and the Mayor. Mr. Izod took advantage of the occasion to reiterate his appeal to the men on the mines to make an extra effort to meet the difficulties with which the industry is now confronted by increasing efficiency. The gathering, which we hope will now be an annual one, was thoroughly representative of "the men who make the wheels go round."

* * * *

Southern Van Ryn.

The following cable has been despatched to the London office of the Southern Van Ryn Company: "Referring to your telegram of 29th, centralization both properties general effect great saving buildings, plant, machinery and permanent works staff administration. Expect cyanide works Nigel Van Ryn section to be ready September. First full monthly crushing 2,500 tons Nigel Reef, October. Expect recovery 7 dwts. per ton, equal to 875 ounces recovery, profit £1,875. Estimated total expenditure both properties plant equipment development working until up to end of year £36,000. Estimate gold recovery up to end of year £13,125. Add £2,125 expenditure contingencies leaves net outgoing £25,000. Present cash resources over £40,000 not counting proceeds present issue. Expect early 1921 mine treat 2,500 tons monthly Van Ryn Reef northern section in addition estimated value 6 dwts. estimated profit 10s. per ton yielding total profit approximately £3,000 per month from two sections. Profits plus additional capital now being provided will be put into development. Estimated average cost mining reduction gold 20s. per ton, coal production 3s. per ton which latter will be reduced by profits from sales. Van Ryn Reef main incline shaft values improving with depth. Shaft now being carried to 3rd level. Borehole sunk 150 ft. Now in hanging wall shale of Modder West Reef expect strike next 100 feet. Foregoing authorised by consulting engineer." The attention of the public is called to the present issue of 100,000 shares at par, subject to 50 per cent. commission in cash. The list of applications for this issue will close in Johannesburg on the 15th instant and in London on the 31st instant. Those who desire to apply for shares are advised to write to the secretary for application forms if they have not cut out the forms in the recent advertisements in the public press.

Stoping at the Geduld.

At the Geduld 185 fathoms were broken in 26 shifts with the Holman cradle hammer drill in the month of June. This works out at 2·37 fathoms per machine shift. The stope is 48 in. wide, the dip being 12 deg. 28·41 tons were broken per machine shift. As far as we know, this is a record for stoping, but we are not quite clear on the point, as we understand that the records regarding stoping are rather hazy.

* * * *

Rand Water Board: Success of the New Issue.

Despite the competing attractions of other public loans, the new issue of Stock by the Rand Water Board is being splendidly received throughout the country. The Water Board has wisely decided to raise the new loan in South Africa, and when it is remembered that the deposits in the banks of the Union exceed ninety-one millions, it is reasonable to suppose that a gilt-edged security of this description offering 6 per cent., issued at 97½ per cent., will be readily taken up. The list will remain open during the month, and copies of the prospectus may be obtained from any branch of the Standard, National and A.B.C. Banks.

* * * *

A Book on Oil.

Mr. E. H. Cunningham Craig has published a book on "Oil Finding," which forms a valuable introduction to the geological study of petroleum, containing details of the results of recent research work and the conclusions based thereon. The opening chapter deals with the origin of petroleum, and is succeeded by information, criticism, and suggestion in processes of formation, geological structure, oil shales and turbanites, location of wells, petroleum prospects in Great Britain, and many other subjects. Accompanied by excellent illustrations, the work is a valuable contribution to the literature on oil, free from excessive technical terms, and of interest to students, investors, and the general public.

* * * *

Armstrong's Activities: Water Power in Scotland.

There seems to be no end to the activities of Armstrongs in the industrial world. Armstrongs and Main, who are members of the Armstrong-Whitworth group, are undertaking the manufacture of water turbines in Glasgow, in connection with the establishment of complete hydro-electric undertakings in Scotland. The only obstacle is that the supply of hydro-electric engineers falls far short of the demand. With the manufacture of turbines on the "Armstrong" scale in Glasgow, and the existence of a comparatively large amount of water power in Scotland, it is hoped to stimulate the training of Scotch engineers in the works of surveying, manufacture, and construction, for which undoubtedly, future hydro-electric developments, under the ægis of so famous a firm as Armstrong, Whitworths, will offer an extremely wide scope.

* * * *

The Ryan Nigel Acquires New Interests.

This company has just completed the purchase of the estate English's interest (12-25ths, roughly 30,000 morgen) in the O'Reilly block of 20 farms, measuring in all 63,420 morgen 65 square roods. These farms are in the low country, the Selati railway line and the Blyde River runs through almost the centre of the block. The block of farms is bounded on the one side by the Oliphants River, with many miles of frontage, and all are situated in the district of Lydenburg. The names and numbers of the farms are as follow: Middlesex 162, Edinburgh 163, Margate 164 Richmond 165, Vienna 166, Brussels 168, Portsmouth 173, Berlin 174, Cambridge 175, Glencoe 176, Oxford 177, Liverpool 178, Southampton 179, Amsterdam 180, Rome 181, Derby 184. Epsom 187, Paris 188, York 189, Essex 190. During the winter it is intended to make a thorough inspection of the farms with a view to future prospecting operations. The block is suited for cattle ranching on a large scale. Prospecting of the company's block of nearly 12,000 morgen, 90 miles north of Pretoria and east of Schildpadfontein, has been suspended owing to the difficulty of obtaining native labour. Tin has been found over a large area, but up to the present no payable body has been located. Prospects are encouraging, and as soon as labour is available prospecting operations will be restarted.

Magadi Soda: Prospects of the Company.

The recent decline in Magadi Soda shares in London was evidently due to the general realising movement, and not to any unfavourable development in connection with the company itself. As a matter of fact, according to the Central Mining directors' report, the reorganisation of the plant at the Lake (East Africa) is proceeding satisfactorily, and it is anticipated that the production of soda ash, which ceased temporarily last year, will be resumed very shortly. Contracts have been entered into assuring the disposal of the output over a considerable period, and sales from stock are now being made at good prices. The Calcutta Works are producing regular and increasing supplies of caustic soda, which is readily absorbed by the market.

* * * *

The Diamond Market.

The latest report on the diamond market in London states: Conditions in the market for industrial and rough diamonds remain much the same as a week ago, business being slack. Apparently the crisis caused at Antwerp by the fluctuations of exchange, which necessitates the stoppage of work for a month, is having little influence. Indeed, there are evidences of an improvement in the volume of trading so soon as conditions generally become more settled. In fact, there are those who believe that the financial state of the trade is much stronger than at any period in its history, as all the merchants and cutters have made large profits during the last two years, and for this reason there seems to be no desire to liquidate stock. In the early autumn it is believed that the foreign exchanges will be more stabilised, as both France and Belgium will be receiving the benefit of their efforts to put forth large exports, which at the present time are being counter-balanced by their purchases of raw materials. Shareholders, therefore, in the producing companies can regard the situation with perfect equanimity, and the shrewd investor is already getting to realise that at the present low levels the diamond shares offer a very attractive proposition. This has not yet been reflected in prices, except that Premier shares have appreciated somewhat. De Beers, which are subject to the influence of the exchanges, are flat, and the excellent dividend of 50 per cent. per annum announced by the South African Diamond Corporation has not been reflected in the shares.

* * * *

Our Coal, Iron and Steel Supplement.

With our issue of July 23 will be included an important supplement dealing with the steel and iron and coal industries and resources of South Africa. The tremendous potentialities of the Union as a producer of iron and steel are only now beginning to be realised, and in this special supplement it will be our endeavour to give a general idea of the immensity and value of the iron beds of South Africa, which await exploitation, of the various enterprises which within the past few years have ushered in the dawn of a steel manufacturing epoch, and of the tremendous markets which are available locally and possibly overseas, too, for a South African iron and steel industry. Hand in hand with the iron and steel industry marches the coal industry. In this as in every other country the fates of iron and steel enterprises are indissolubly mingled with the extent and prosperity of the coal mines, and in this special number we shall review the fortunes of the South African collieries in the light of all the many important developments which have taken place since our special coal supplement was issued at the beginning of the year. It is an economic and historical truism that the progress of a State stands almost in direct proportion to its coal, iron and steel industries. There is no doubt whatever that the power of Great Britain rests to a large extent upon its coal areas and iron and steel works, and that the United States would not have a population of over a hundred millions if it had to import its coal and iron and steel goods. The future of the iron and steel industry of South Africa is a matter which so closely touches upon our national life and future that we feel sure that this forthcoming coal, iron and steel supplement, which will be copiously illustrated, will receive world-wide attention, and those who desire copies of the publication are earnestly advised to book their orders well in advance.

TOPICS OF THE WEEK.

THE CURRENCY REPORT.

The voluminous blue book containing the report of the Select Committee on the embargo on specie export, and the evidence given before that Committee makes extraordinarily interesting reading. Regarded in conjunction with the debate in the Union Parliament on the first reading of the Bill embodying the recommendations of the Committee, it is plain that we have all the makings of a stern and long-drawn-out discussion of the Bill in its next stage.. The Majority Report, as we briefly stated last week, adopts in their entirety what are now known as the Strakosch proposals. Having considered all the competing proposals, including those of Mr. D. C. Greig, Mr. Samuel Evans, and many others, and taken evidence from bankers, professors and business men, the Select Committee sums up as follows: The Committee is of opinion that, in view of the disappearance of gold specie and of the high cost of replacing it under present conditions, it is desirable to provide some means of conserving our specie reserves. In this connection, proposals have been submitted (a) to make the present bank note currency inconvertible and base it upon Imperial Treasury Bills instead of gold; (b) to make the present bank note currency inconvertible but base it on a full cover of gold, except for a small "fiduciary" issue which should be subject to taxation; (c) to preserve the convertibility of the present bank note currency for the time being and pending its replacement by notes of a central bank of issue, but to take gold out of circulation and replace it by fully covered certificates, such certificates to be temporarily inconvertible pending the restoration of the gold standard. The Committee state that the first of these proposals is open to the serious objection that it would involve linking our exchange to sterling and that it might tend to inflation, should the banks' funds accumulate unduly in London, when there would be a strong inducement to them to increase the quantity of notes in circulation here. As to the second, it is desirable to avoid providing for the inconvertibility of existing bank note issues and moreover the proposal would involve great difficulties in the way of control and it appears to be unduly rigid and calculated to restrict banking facilities necessary to meet the demands of the country's business. Such a scheme would almost infallibly break down in the event of a financial crisis, and might even cause one. The Committee is of opinion that the proposals set forth in (c) are not only the soundest method of conserving our specie reserves, but taken in conjunction with the establishment of a central reserve bank, will afford the best means of expansion and contraction of the currency in consonance with the country's needs. The Committee is further of opinion that to secure an organisation of credit by which confidence may be firmly established and credit maintained under all circumstances and conditions, it is desirable to supplement the existing banking system of the Union by the establishment of a central banking institution, which would not in the ordinary course be a competitor of the existing banks but which, *inter alia*, would (a) have the sole right of issuing bank notes, (b) centralize the cash reserves of the country, (c) exercise a general control over banking operations by the regulation of rates of discount, and (d) be able to regulate and provide for expansion and contraction of the currency in accordance with the demands of the country's business. The Committee considers that the effect of its proposals, if adopted, will be as follows: (a) To provide a currency which will avoid the withdrawal of gold from circulation while such currency is gradually being restored to gold parity, and which is convertible into gold as soon as it has reached gold parity. (b) The exchange will find its natural level without arbitrary and violent interference. (c) The avoidance of grave impediments to industry and trade resulting from the present restriction of banking facilities and uncertainty as to the future through the lack of a financial policy. (d) The establishment of a central bank will through the control which it will exercise over currency and banking provide the best means of promoting and pursuing a sound financial policy. In other words, the Committee, it will be seen, adopts and defends the Strakosch proposals. So does, in a measure, the Executive of the Transvaal Chamber of Mines, to which we naturally look for a lead in regard to the interests of the gold mining industry. Mr. H. O. Buckle went to Capetown and gave evidence on behalf of the Chamber, from which we gather that Mr. Strakosch's scheme, with certain minor qualifications, commends itself to the industry. Sir Lionel Phillips, at the Central Mining meeting in London, and Sir Evelyn Wallers, at the last meeting of the Chamber of Mines, also expressed themselves to the same effect. In the course of his evidence Mr. H. O. Buckle, speaking as President of the Chamber of Mines, said that the Chamber supports any reasonable measure for putting a stop to the leakage of gold, which can best be done, in the Chamber's opinion, by placing the South African currency, temporarily, on an inconvertible paper basis, backed by gold either entirely or to a very large extent. "At the same time," he said, "it is of the utmost importance, from the point of view of the gold mines, and also of the country generally, that no steps be taken which will tend to increase the cost of living. The evidence is overwhelming that a great increase in paper currency, *more than is necessary to finance a real expanding trade position* is accompanied by increases in the cost of living. Consequently the Chamber is in favour of strict safeguards on the issue of paper money by the banks. If the whole of the issue is covered by gold, then of course, the banks will have no inducement to over-issue; any, however, that is not covered by gold should, in the opinion of the Chamber be subject to a sufficient tax to prevent the issue of notes being, in itself, a profitable operation for the banks. The check should not, of course, be so severe as to prevent the natural expansion of the currency to meet expanding trade. As regards the removal of the embargo on gold, the Chamber is quite unable to see how, under present conditions, this could possibly be agreed to without disastrous consequences. The demand for gold for export would be so great that the banks could not meet it. It is presumed that it is not intended that while the embargo is removed for everyone else the gold mines should be compelled to sell their gold at par to the banks, to be handed out by the latter for notes. Such a suggestion is too ridiculous for serious consideration. As soon as temporary inconvertible notes, even if backed by gold, are substituted for the present basis, the removal of the embargo would cease to be a matter of so much importance. The establishment of the refinery and mint are both steps which, from the point of view of the gold mining industry it is most desirable should be pushed on without delay, as rendering the industry and the country much more independent in the disposal of the gold production. As regards the proposed establishment of a Federal Reserve Bank, the Chamber has no very pronounced views either for or against the proposal." These views, it may be noted, were in substantial agreement with those of the general managers of the banks. The latter were at first, however, actively opposed to the idea of a Reserve Bank, but that opposition weakened towards the end of the sittings of the Committee. From Mr. E. C. Reynolds, the general manager of the National Bank, some remarkable facts were elicited regarding the cost of importing sovereigns from London. He said: "We provided at the end of our financial year £250,000 for the importation of sovereigns. Since then we have had to order 2,000,000, and we are ordering another 1,000,000. The 2,000,000 ordered will cost us every penny of £500,000, perhaps more. We know what the premium on gold is, but on the top of that we have to pay insurance and freight." This throws a very interesting light on the position of the banks, which may or may not be due, as their critics say, to their own lack of foresight. At any rate, they now contend—and the Select Committee and the Government agree with them—that their interests are identical with those of the country as a whole; and they stand to benefit from the adoption of the Strakosch proposals. Despite the opposition of Mr. Merriman and Mr. Jagger, and, to some degree, of Col. Creswell, it would seem that those proposals will ultimately be adopted more or less in their entirety.

SIEMENS BROTHERS
& CO., LIMITED

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE.
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes.
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

PRIMARY CELLS

Fluid and Dry.

WIRES

Rubber Covered. Gutta-Percha Covered.
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-Speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS. MINES. POWER STATIONS.

Representative in South Africa.

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams : "SIEMENS"**

THE HALF YEAR'S DIVIDENDS.

Totals and Comparisons—The Rand Distributes £3,118,496—Far East Rand Contributes Two Thirds—Dividends Since 1887 Aggregate £145,176,673—Figures for Financial, Diamond and Coal Companies, etc.

With the declaration of the Robinson Deep dividend announced on July 2nd, the dividend list for the half-year is completed, and it becomes possible to announce totals in respect of the first six months of 1920. The Robinson Deep's distribution is in respect of the "A" shares and is of 2s. per share, amounting to £50,000. The dividend is payable on or as soon as possible after the 27th August, 1920, to shareholders of "A" shares registered on the 15th July, 1920.

The Half-Year's Totals.

The total for Rand gold mines amounts to £3,118,496 and for outside districts to £96,817, making a total for the gold mines of the Transvaal of £3,215,313. It will be interesting to set forth these figures in comparative form with the declarations for the preceding half-years. The totals in respect of each such period are as under:

	Rand.	Outside Districts.
First half, 1920	£3,118,496	£96,817
Second half, 1919 ...	3,707,235	58,158
First half, 1919	2,560,977	35,500

It will be seen, therefore, that whilst the Rand distributions for the first six months of the current year are nearly £600,000 less than for the last half of 1920, there is an increase of over half-a-million to be observed by comparison with the dividend harvest of twelve months ago. As to the outside districts, it should be noted that the increased return is in large measure due to the improved dividend declared by the Transvaal Gold Mining Estates in March last on a capital of £604,225. Of the grand total the Far East Rand contributes about two-thirds, the total contribution of mines east of Boksburg being £2,018,645.

Dividends 1887-1920.

It will be interesting to note the total dividends paid out by Rand and Transvaal gold mines up to this date from the inception of the Witwatersrand gold fields in 1887. The figures are:

The Rand, 1887-1918	£130,900,371
Year 1919	6,268,212
First half, 1920	3,118,496
Total for Rand	£140,287,079
Outside Districts, 1887-1918	£4,699,119
Year 1919	93,658
First half, 1920	96,817
Total for Outside Districts ...	£4,889,594

Making a grand total for the Transvaal gold mining industry in thirty-three years of £145,176,673.

Companies Other Than Gold Mines.

The following is a complete list of dividends declared by financial corporations, diamond, coal and tin mines, etc., for the first six months of 1920: Apex Company, 6d. per share; Central Mining and Investment Corporation, Ltd., 2s. per share and bonus of 6s. per share, making in all 18s., or $11\frac{1}{4}$ per cent., in respect of 1919 (this distribution is free of income tax and is equivalent to 16 per cent. gross); Cassel Coal, 1s. per share; Rand Selection Corporation, Ltd., 2s. per share, or 10 per cent., for the half-year ended 30th June, 1920; Anglo-American Corporation, Ltd., 1s. per share, or 5 per cent.; Pretoria Portland Cement Co., Ltd., 4s. per share, or 20 per cent.; De Beers Consolidated Mines, Ltd. (Pref.), 10s. per share, or 20 per cent.; Do. (Def.), 30s. per share, or 60 per cent.; Natal Navigation Collieries and Estate Co., Ltd., $3\frac{3}{4}$ per cent. (9d. per share) and bonus of $1\frac{1}{4}$ per cent. (3d. per share), making a total of 5 per cent. for the half-year ended 30th June, 1920); Johannesburg Consolidated Investment Co., Ltd., 10 per cent. and $2\frac{1}{2}$ per cent. bonus, free of income tax; Rand Mines, Ltd., 60 per cent., or 3s. per share; Monteleo Diamonds, Ltd., 10 per cent., or 2s. per share; Brick and Potteries, 1s. per share; Clydesdale Collieries, 1s. 6d. per share; Leeuwpoorts, 1s. per share; Rooibergs, 1s. per share; Swazi Tins, 1s. per share; Kleinfontein Estates, 2s. per share.

Through a printer's error in our last issue, the Robinson G.M. Company's dividend for the first six months of this year was wrongly stated to amount to £137,500. The right amount was £27,500.

SPECIAL MACHINERY,
TOOLS, APPLIANCES
and EQUIPMENT
MANUFACTURED TO CUSTOMERS' REQUIREMENTS.

Accuracy and quick delivery guaranteed.

Enfield Machine & Auto Tool Co., Ltd.,
ENFIELD, MIDDLESEX, ENGLAND.

IRON
AND
STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

LATEST NEWS FROM THE DIAMOND MINES AND FIELDS.

A Better Outlook—Frank Smith's Fine Prospects—The Test Washing at Rouxville—Latest from the Emerald Properties—Re-appearance of South West Diamonds—The Position of Greigs.

DIAMOND stocks and especially the shares of recently-formed syndicates have suffered severely during the recent depression. Disquieting rumours as to difficulties in effecting sales locally and complexities in connection with the exchange question had a depressing effect before the recent period of forced liquidation on a large scale had such a disastrous influence on mining stocks and shares generally. But the much improved tone in the market observable at the time of going to press has, it seems, put a certain amount of life into diamond enterprises again, and at the moment the outlook appears to be fairly promising.

So far as one can ascertain there has been no marked diminution in the overseas demand for good class stones. Alluvial diggers have suffered severely through the exchange question and also probably on account of a deliberate attempt to restrict prices and curtail the output of the river diggings, which in the earlier months of the year had assumed such large proportions that the controllers of the gem market no doubt became somewhat alarmed at the magnitude of the alluvial output. The operations of the diamond selling syndicate have, however, progressed unimpeded and one can at the least rest assured that the demand for high-class stones is likely to continue for some considerable time to come.

And when one considers the prospects of propositions which, although low grade in quantity are essentially high grade in quality, that is to say, mines which produce a comparatively small number of carats per 100 loads but the stones of which command a markedly high price on account of their purity and brilliance, the outlook for the recently reconstructed Frank Smith mine engages first attention. Washing operations commenced there some little time ago, and with an excellent washing plant of 1,000 loads per day nominal capacity and two million loads of " blue " above the 200 ft. level, the outlook for this proposition seems exceptionally attractive. We understand that Mr. Van Eyssen, the manager, is very confident as to results, and it has been estimated that on a conservative basis a profit of £16,500 per month will be earned. This assumes a selling value for the produce of £8 per carat, but in well-informed quarters a price of £12 per carat is looked for, in which case the profit would be correspondingly increased.

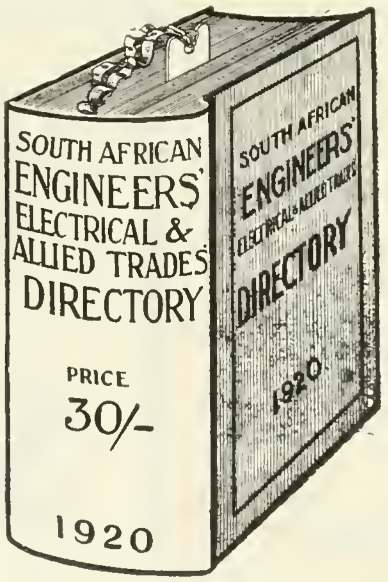
Another concern which has recently commenced productive operations is Rouxville Diamonds, Ltd. A test washing has been in progress for some little time and the results secured have been decidedly good. We understand indeed that the test wash has been yielding about one carat to the load and the stones maintain an exceptionally high grade standard of quality.

At the Emerald Diamonds farm, Kouwater, too, test washing is in progress. Mr. Leopold Lewe, a director of the company is at present on the property and Mr. Grindley Ferris, the company's consulting engineer, has recently returned from a lengthy tour of investigation of the company's enormous areas. An extensive policy of exploration and development is being embarked on, and it is confidently anticipated that the Emerald Company's areas will become producers of first-rate importance in the near future.

South-West Diamonds, which enjoyed considerable notoriety a few months ago, have rather been " out of the limelight " recently. A new board has, however, been formed with Mr. L. Charlston Goch as chairman, and an important statement as to the affairs and prospects of the concern will shortly be published. The output of diamonds from the company's various land areas has recently been increased and the company is understood to have a considerable number of carats on hand. Rumour has it that a scheme for splitting the stock into shares of 5s. nominal value will shortly be submitted to shareholders.

Another board which has recently been reconstructed is that of Greig Diamonds. One of the largest shareholders has, so it is understood, severed his connection with this concern and new directors are being appointed.

Just Off
The Press.



Accurate and
Up-to-Date.

The Business Man's Guide to the Engineering, Electrical, Iron, Steel, Machinery, Hardware and Allied Trades of the Union, Rhodesia, etc.

Also a Complete Directory of the Mines and Mining Concerns in the Union of South Africa and Rhodesia, etc., giving Names and Addresses of Chief Officials, nearest Railway Stations, etc.

Descriptive circular, giving examples of various sections, will be sent free of charge on application to THE PUBLISHERS,

The South African Mining and Engineering Journal,

176-180, Stock Exchange Bldg.,

Telephone 913. JOHANNESBURG. P.O. Box 963.

SILVER AND LEAD PRICES IN WORLD MARKETS.

The course of silver and lead prices is of very immediate interest in the Transvaal to-day. From the *Engineering and Mining Journal of New York*, dated May 29, we learn that " spot lead seems to be the only metal which is in demand, and small lots have probably been sold locally as high as 9c. June lead is also scarce, but has been sold in lots up to one hundred or two hundred tons at the prices which we quote. Some of this metal has been made available by cancellations. July and later is easy at close to 8c. for both St. Louis and New York delivery. Domestic producers are not turning out as much metal as they expected to this spring, on account of industrial conditions, and see no hope of early betterment. Unless demand drops off materially prices should continue satisfactory. Mexican lead is still being sold here, and some Australian lead also reaches New York occasionally. Conditions in Mexico are expected to improve considerably under the new government. A disposition has already been shown to return 'borrowed' rolling stock to some producers. Some inquiry has developed for lead to be shipped to Sweden."

SILVER.

" Since the announcement by the Director of the Mint that the United States Government would purchase silver mined and refined in the United States at $1 per oz. 1,000 fine, there has been a renewal of buying on the part of China, which has advanced the price of silver slightly the last few days. Although a continued demand from the Far East would tend to increase prices, a return to the recent high levels seems improbable. At present the export season in China is not fully under way. Further comment on the silver situation appears on page 1242. Mexican dollars at New York: May 20, $76\frac{1}{4}$; May 21, $76\frac{1}{4}$ May 22, $76\frac{1}{2}$; May 24, $77\frac{3}{4}$; May 25, 78; May 26, $78\frac{1}{4}$." The same paper says:

Three years ago "dollar silver" began to be the goal of the producers of that metal, and when the price reached that figure in the summer of 1917 visions of huge profits seemed on the point of realisation. Dollar silver now has an opposite effect: it is viewed with alarm, and some producers are fearful that the slump in the white metal means an end to profitable operation of their plants. Even at 1 dol. per oz. the price of silver compares well with the current prices of other metals, if we except iron and quicksilver. Pig iron, of course, is selling at excessively high prices—about 44 dols. per ton now, compared with 15.42 dols. in 1913—an increase of almost 200 per cent. Quicksilver, too, selling for 40 dols. per 75lb. flask in 1913, is now 87.50 dols., or an increase of 119 per cent. But, aside from these, one dollar is a comparatively good price for silver.

Compared with 1913 prices, lead has increased 91 per cent., silver (at 1 dol.) 73 per cent., zinc 34 per cent., antimony 30 per cent., and copper and tin have increased 21 per cent. Silver producers should, therefore, feel fairly well satisfied if the price remains within a reasonable range of 1 dol.

The decline has taken place as a result of both a decreased demand and an increased supply. Chinese buying has fallen off materially, on account of unfavourable exchange. The demand from the interior has abated, and the stock of silver at Shanghai is more than double that at the beginning of the year. The other big consumer in the East is India. Buying for the Indian bazaars has been less active, and the reserve stock of gold and silver behind the Indian note circulation has recently risen to over 50 per cent. Indian demand will continue, though probably not on as great a scale as during the last few months, but Chinese buying may be small for some time. No unusual demand for silver is to be expected from other parts of the world.

Increases in the supply are caused by the retirement of much silver coinage in Europe, it being replaced by base metals and paper. This is melted, and finds a market through London. The recent high prices of the metal have stimulated production in some quarters, but not to the extent which would have occurred had not industrial troubles interfered, and had not copper and zinc, of which silver is a by-product, sold at such low prices.

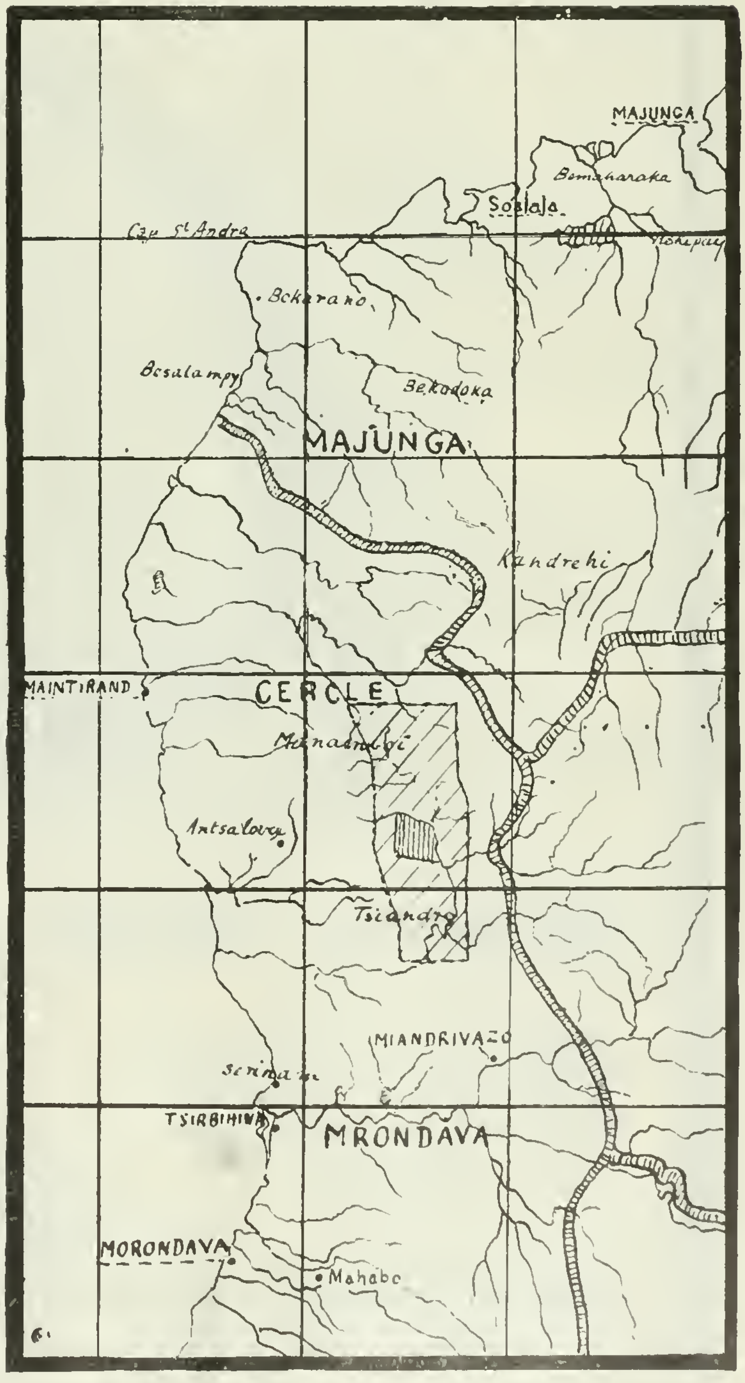
Purchase of silver up to an aggregate amount of 207,000,000 oz. by the United States Government is provided for under the Pittman Act, with the metal at 1 dol. per oz. During the War 300,000,000 dols.' worth of silver dollars was melted, and this will be replaced. All metal so purchased by the Government must be wholly produced in this country. Before the War the world's annual production of silver was about 225,000,000 oz., and the United States production approximately 60,000,0000 oz. If all the silver in this country were sold to the Government the price could not drop below 1 dol. for about three years. However, should demands from other sources fall off materially, it might be possible that foreign silver would sell for 75 cents or 50 cents, while American producers were receiving the fixed price of 1 dol. This would necessitate careful scrutiny in order to prevent Mexican and other metal from masquerading as the product of the United States.

The situation may be summed up as follows —Under the present laws, silver produced wholly in this country will sell at 1 dol. per oz. or better, for at least three years. Foreign silver will, in all likelihood, sell at the same rate as the domestic product. If, however, an industrial depression should develop, a pronounced curtailment of the demand might result, and foreign silver might drop below 1 dol. possibly in two years, but hardly in one year. We can see no ground for a belief that any such price as 1.50 dols. will be realised for a long time.

American silver producers are, therefore, in an excellent position. They are assured of a fixed price for their product for at least three years to come, and probably five, and will doubtless experience a gradual reduction in their operating costs.

Pearl Bitumen Transport and Trading Co.

The attached map illustrates that portion of the Island of Madagascar in which are situated the properties of the Pearl Bitumen Company, referred to in our last issue. The company's concession is shown hatched on the map. A cable has just been received from the company's representative in Madagascar stating that a large consignment of bitumen is now available for shipment and it is expected that this will be despatched almost immediately.



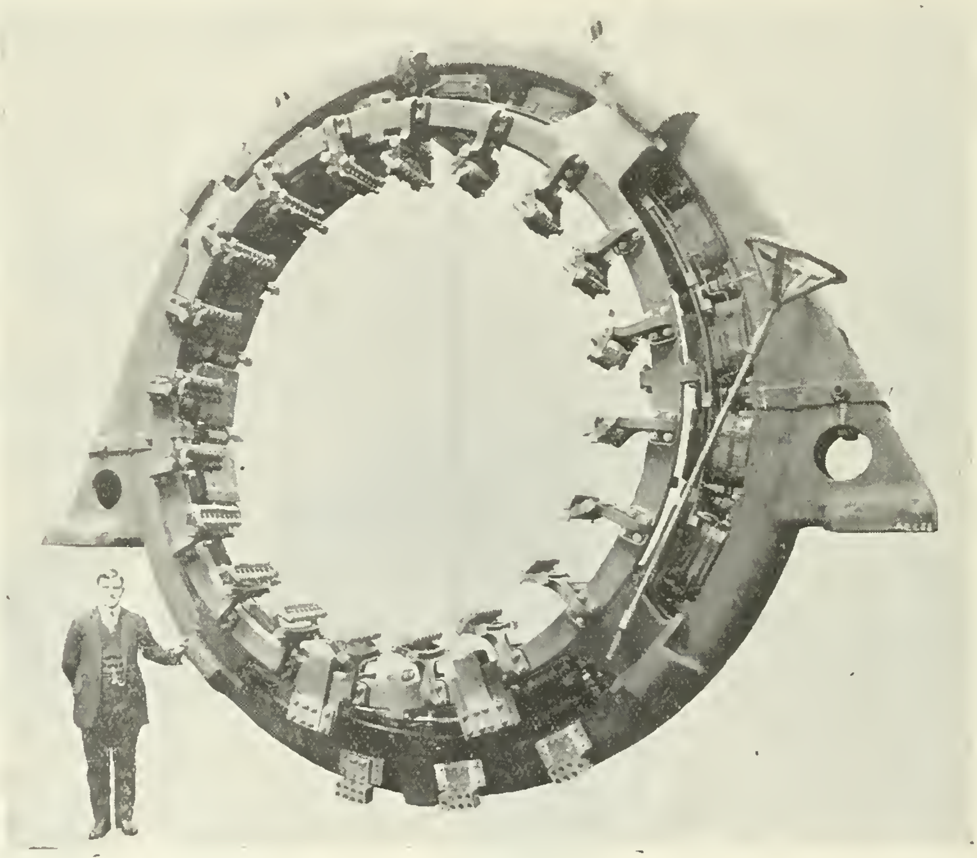
Map of a Portion of Madagascar.

The
British General Electric Co.

JOHANNESBURG. **LIMITED.**

P.O. Box 2406. Telegraphic Address: "Current." Telephone 4242/3.

South African Branch of **THE GENERAL ELECTRIC COMPANY, LTD., ENGLAND.**



WITTON DIRECT CURRENT MOTORS AND GENERATORS are Manufactured in the various factories of THE GENERAL ELECTRIC CO., LTD., ENGLAND.

They range in size from 1/30 h.p. to the largest engine-driven generators and motors for ELECTRIC WINDERS.

DIRECT CURRENT MOTORS AND GENERATORS IN SIZES UP TO 50 H.P. CAN BE SUPPLIED FROM LOCAL STOCKS.

Branch Office: 83/89, Castle Street, Capetown.

AND AT PORT ELIZABETH, EAST LONDON, DURBAN, BULAWAYO, ETC.

THE NICKEL OCCURRENCE IN THE BARBERTON DISTRICT.

[By T. G. Trevor, A.R.S.M., Inspector of Mines, Pretoria.]

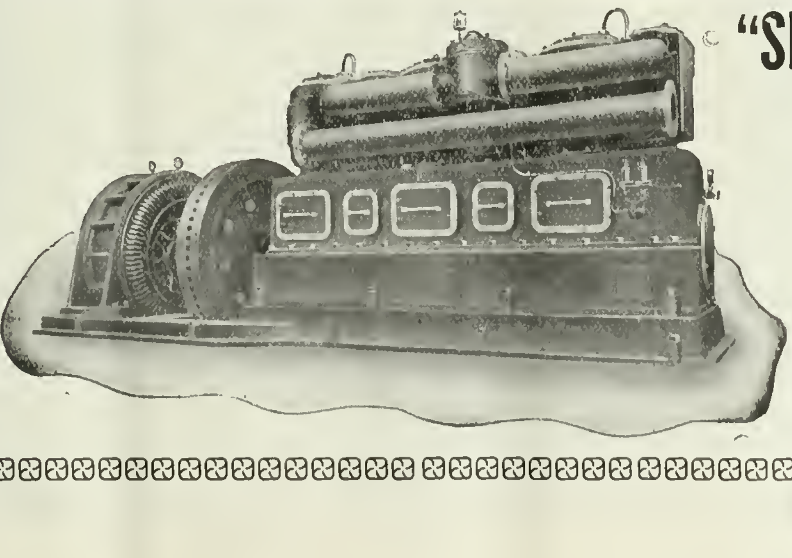
An article on nickel was published in November, 1918, which gave a description of the deposits of the mineral in the Union of South Africa as known at that time. Since then, within the last six months, an interesting discovery of the metal, which may be of economic importance, has been made on the property of the Scotia Talc Mine in the Barberton district. It is desired to put on record a description of this deposit so as to keep the information supplied in the original article up to date. The occurrence, which was accidentally discovered, lies on the top of the range of hills which runs immediately to the north of the railway line between Joe's Luck Siding and the Sheba Bridge; the actual deposit being on the summit of the ridge, about half way between those points; this is in the neighbourhood of the mutual beacon between Lots Nos. 279, 351, 350, and 380. The geological formation here is that of the Jamestown series of schists, described by Dr. Hall in his memoir on the Geology of the Barberton Gold Mining District—Memoir No. 9 of the Geological Survey—the actual horizon being that of the Lily Bar. The work done consists of one main quarry about 12 feet deep, and four or five small cuttings which expose the outcrop for some fifty yards. The exposure here shows a bed 2 ft. 3 in. in thickness, dipping conformably with the formation at an angle of about 60 deg. to the south. The bed is highly stained with a green mineral, and obviously contains a large percentage of granular magnetite. The high specific gravity of the rock is immediately noticeable. The hanging wall is a fissile sandy rock, which might be described as a phyllite. The footwall is a decomposed sandy rock, also shaley in structure and showing some green stains. The report of the Government Mining Chemist on a selected sample of the main bed was as follows: "In order to preserve the specimen only a small portion chipped off the end was analysed. This contained 25·8 per cent. of metallic nickel. As sulphur and arsenic appear to be absent I think the ore is a mixture of magnetite and a nickel silicate. Its specific gravity is 4·49. It is almost totally insoluble in acid.—(Sgd.) James Moir, Government Mining Chemist."

A representative sample across 2 ft. 3 in. of the main outcrop taken by the writer at about 3 ft. below the surface gave 17·2 per cent. nickel, while a similar sample taken over 1 ft. 3 in. of the footwall gave 1·67 per cent. This occurrence is about 1,500 yards to the west of the Scotia Talc Mine, and, if the bed is continuous, it should run a few hundred feet north of that mine, *i.e.*, geologically below it. In the talc mine itself the occurrence of nickel has been noted, and in a sample of the residual limonite, which results from the leaching of the talc—the occurrence of which is a marked feature in the mine—the writer got an assay showing 1·42 per cent. nickel. It is, therefore, obvious that nickel is comparatively widely diffused on this horizon. Up to the present the owners have not developed the discovery in any way as, before doing so, they wish to make inquiries as to the value of such an ore. The ores being worked in the world at the present time are of very much smaller value, the Sudbury ore carrying only 3 per cent. to 4 per cent. nickel, plus 2 per cent. copper, and that of New Caledonia from 4 per cent. to 7 per cent. nickel. The quantities, however, of the Sudbury ore are enormous, and it is stated that the companies working those deposits have ore developed sufficient for the next twenty-five years, while the Allied Governments are said to have enough metallic nickel on hand for the next five years. At a meeting of the Nickel Section of the Imperial Mineral Resources Bureau, which was attended by the writer, last January, it was stated that the demand for nickel at the present time was far less than the possible supply, but that it was morally certain that new uses for the metal would be sought and found. Under the circumstances it seems probable that, though there is little chance of establishing a nickel industry on such a deposit as that under review, yet ore of such a high value may be exportable at a profit if the mine develops satisfactorily. Working costs should be extremely low, as adits from the base of the hill should give backs of at least 600 ft. to 800 ft. in height, and the railway would be within a few hundred yards of the entrance to such adits. The Talc Company, who own the mine, already possess a valuable water-right at Joe's Luck, and, under similar circumstances in the Barberton district, mining costs are not higher than about ten shillings per ton. Inquiries are now being made as to the value of such an ore, and if the replies to these are satisfactory development will be proceeded with.

FOR SALE.

3 pair high Roller Mill by Turner, Ipswich. Latest design and in perfect running order. Capacity, 5 bags Mealie Meal per hour, also Crusher, capacity, 10 bags. Plant now being worked by 20 h.p. Electric Motor, 3 phase, 347 volts.

Full particulars from H. RUFFEL,
Box 40, Bloemfontein.



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessibility, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

DIAMOND RETURNS FOR MAY MONTH.

South-Western Transvaal Diggings.

The returns from the various alluvial diamond diggings in the South-Western Transvaal for the month of May amounted to 6,311 carats, value £61,910, as compared with 8,390 carats, value £141,415 in April, and 9,588 carats, value £158,662, in March. The returns for May month are officially reported as follows :—

Name and No. of Farm.	Carats.	Value.	No. of Diggers Registering Finds.
Blesbokfontein 63	1,003	£7,965	195
Bloemhof 130	323	2,750	122
Bloemheuvel 171	7	102	2
Christiana	24	269	11
Doornbult 93	46	942	6
Diamondkuil	2	9	1
Diamantdoorns 131	17	190	1
Dievedraai 245	5	26	1
Eastleigh 593	20	293	10
Grootpoort 125	5	25	1
Grootdoorns 133	8	67	1
Holloway's Rust 142	21	161	4
Italie 328	27	180	1
Koppiesvlei 54	20	225	2
Kromellenboog 108	8	145	1
Kareepan 137	490	6,285	70
Klipkuil 104	21	235	3
Kameelkuil 142	978	9,939	172
Langkuil	8	101	1
Leeuwfontein 143	63	632	24
London 33	333	3,012	70
Maroetjesfontein 120	23	193	1
Mooifontein 128	64	488	2
Mimosa 75	16	111	1
Olivenfontein 376	15	91	1
Plessisdam 121	250	3,057	34
Rietput 120	6	77	2
Rooikraal	5	66	2
Rietkuil 138	701	6,881	148
Sandringham 25	18	294	1
Schweizer-Reneke	230	2,602	13
Syfergat 150	202	2,295	6
Syferfontein 107	21	230	1
Van Zyl's Drift 154	5	37	1
Zevenfontein 165	28	356	11
Zwartlaagte 68	1,334	11,579	260
Total	6,341	£61,910	1,183

OTHER TRANSVAAL AREAS.

Bynestpoort 520	2,184	£6,450	397
Kameelfontein 106	225	711	9
Roodeplaats 314	25	80	3
Kaalfontein 402	30½	20	1
Rietfontein 501	22	17½	1
Total	2,486½	£7,278½	411

PUBLIC DIGGINGS IN THE CAPE PROVINCE.

The output of diamonds from the public diggings in the Cape Province during the month of May was as under (the number of claimholders in Barkly West District being given as 1,954) :—

BARKLY WEST DISTRICT (2,916¼ carats, value £32,931 8s.).

	Diggers.	Carats.	Value.
Delport's Hope	14	100½	£1,051
Forlorn Hope	4	29¾	316
Gong Gong	29	182¾	2,492
Good Hope	59	274¾	1,813
Harrisdale	41	254¾	3,719
Hebron	60	145½	1,638
Holpan	21	94¾	1,048
Jonas Kopje	1	2¼	13
Kareepan	37	247¼	2,435
Keiskama	1	1½	3
Klipdam	45	144½	1,235
Klipdrift	83	291¼	2,071
Last Hope	2	9	104
Longlands	32	114½	913
Niekerk's Rush	10	81	1,542
Ricketts' Prospect	9	42¾	581
Rooidam	20	125	1,548
Scholtz's Prospect	21	87¼	1,081
Snyder's Rush	14	134	1,750
Van Zoelen's Laagte	8	19¼	101
Waldeck's Plant	13	211½	2,681
Ward's Hope	9	33¾	197
Winter's Rush	20	288¾	1,591

HERBERT DISTRICT (202¼ carats, value £2,209 0s. 6d.).

Brypaal	7	11	£72
Davisdrift	17	53	448
Mosesberg	7	55¼	541
Platdrift	1	2¼	30
Schmidt's Drift	19	76¼	1,069
Sevonelles	2	4½	48

KIMBERLEY DISTRICT (246 carats, value £3,460).

Robinson's Kopje	10	56	£869
Wedberg	35	190	2,591

TAUNGS DISTRICT (3,010¼ carats, value £33,576 10s. 6d.).

Home Rule	26	405½	£4,563
Killarney	6	19½	271
Tlapeng	393	2,585½	28,742

PRIVATE ESTATES.

River View Diamond Syndicate	89½	£2,685
Pniel Estate	147¾	1,585
New Vaal River D. and E. Syndicate	725¼	8,419

Electrification of First Main Line Road in South America.

A contract amounting to nearly $2,000,000 for the electrification of the first main-line railway in South America has been awarded to the International General Electric Company. The electrification is over the line of the Paulista Railway Company between Jundiaby and Campinas, Brazil, a distance of 45 kilometres or about 28 miles. But since the road is of double track construction the total mileage, including switches and extra track, amounts to 76 miles. The equipment to be supplied by the company consists of 12 locomotives, 8 freight and 4 passenger engines, material for the transmission line and sub-station and a 3,000-volt overhead construction of the twentieth century type. This project anticipates further extensions amounting to 100 additional miles of route which may eventually bring the total electrification up to 128 miles extending between Jundiaby and San Carlos. Power for the operation of the lines will be supplied by the San Paulo Light and Power Company at 88,000 volts, 60 cycles. The locomotives will be of the geared type, 3,000-volt direct current. The freight locomotives will weigh 100 tons each, all weight on driving axles, and the passenger engine 120 tons, equipped with two axle guiding trucks at each end. They will be built at the Erie Works of the General Electric Company. All of them will be equipped with regenerative braking apparatus. The design of the new equipment in fact will parallel closely the Chicago, Milwaukee and St. Paul electrification, while the locomotives will be almost the duplicates of those used so successfully in the Butte, Anaconda and Pacific Railway, except for slightly increased weight and the addition of regenerative braking. It is expected that the new line will be in operation in July, 1921.

THE UNION TENDER BOARD,

The Union Tender Board has accepted the following tenders :—

Supply of Belting, Chilled Shot, Etc. :—J. W. Augood & Co., Pretoria; A. Wack & Shepherd, Johannesburg; Reid & Co., Johannesburg; Fraser & Chalmers, Johannesburg.

Supply of Agency Pattern Posting Boxes, Etc. :—W. Johnstone & Co., Pietermaritzburg; The Western Electric Co., Johannesburg; W. and G. Scott, Capetown.

Supply of Boiler Tubes :—The Griffin Engineering Co., Johannesburg.

Supply of Firebars, Brake Blocks, Etc. :—Pretoria Brass Foundry, Pretoria; Capital Engineering Works, Pretoria.

Somerset East, Erection of Post Office :—F. M. Tallent & Co., Adelaide (£3,479).

Sale of Pinus Insignus Timber, Kluitjes Kraal :—Timbers, Ltd., Plumstead, 1s. 5½d., 1s. 4½d., and 1s. 3½d. per cubic foot.

Supply of Soap :—Natal Soap Works, Ltd., Durban; The Union Chemical Works, Johannesburg.

Construction of Dam at Grootfontein Agricultural College :—M. J. O'Brien, Cradock, £6,876.

Science Fittings, Transvaal University College, Pretoria :—F. Corbishley, Pretoria, £12,645.

THE JUNE OUTPUT: GROUP RETURNS.

Central Mining/Rand Mines Group.

The following are the results of crushing operations of the Central Mining/Rand Mines companies for the month of June:

Company	Tons crushed	Yield in Fine Gold Ozs.	Estimated Value.	Estimated Profit.	Estimated Working Costs per Ton.
City Deep	86,000	33,867	£161,716	£38,202	28/ 8
Cons. Main Reef	51,100	18,751	89,553	13,300	29/ 10
Crown Mines ...	190,000	58,571	279,674	61,041	23/ 0
Dur. Rood. Dp.	24,100	7,372	35,202	*2,511	31/ 3
East Rand Prop.	128,000	35,690	170,421	2,697	26/ 2
Ferreira Deep ..	33,300	10,257	48,977	5,823	25/ 11
Geldenhuis Dp..	47,600	13,521	64,563	840	26/ 9
Knight Central .	26,200	7,899	37,572	2,662	26/ 7
Modder B.	51,500	26,101	124,634	57,891	25/ 11
New Modder ...	84,000	43,335	206,925	111,382	22/ 9
Nourse Mines ...	42,800	14,060	67,036	1,315	30/ 8
Robinson	40,000	9,562	45,658	3,246	21/ 2
Rose Deep	58,700	15,540	74,238	16,288	19/ 8
Village M.R. ...	16,300	5,162	24,620	2,732	26/10
Wolhuter	32,000	8,621	41,165	3,499	23/ 6
Village Deep ...	44,800	15,325	73,175	7,068	29/ 6
Tls. & averages	956,400	323,637	1,545,129	325,478	25/ 6

* Loss.

City Deep.—The initial difficulties in connection with the taking over of the City and Suburban mine were overcome, resulting in a higher tonnage, better grade and lower working costs as compared with the previous month.

Geldenhuis Deep.—Profit due increased tonnage.

General Note.—The valuation of gold has been taken at £5 2s. 6d., less realisations charges of 7s. per fine oz.

Albu Group.

The following information is supplied regarding the June operations of the producing mines of the General Mining group:

Company	Tons Crushed.	Cost.	Cost per Ton.	Total Revenue.	Profit.
Aurora West ...	10,400	£13,560	26·08	£14,040	£480
Meyer & Charl.	14,050	18,307	26·06	47,206	28,899
New Goch	16,000	16,735	20·92	17,290	555
Roodepoort Un.	24,000	27,208	22·67	24,983	*2,225
Van Ryn Est...	36,800	37,171	20·20	43,406	6,235
West Rand Cn.	31,800	42,663	26·83	43,716	1,053
	133,050	£155,644	23·39	£190,641	£37,222
				Less loss	2,225
					£34,997

* Loss.

In calculating the revenue, gold has been taken at a value of 102s. 6d. per fine oz., less estimated realisation charges.

New Goch.—Working costs include an amount of £2,263 expended in shaft sinking and development.

Roodepoort United.—As a preliminary to closing down, a scheme of retrenchment was introduced during the month. The effect of this scheme should be noticeable in the July results.

Van Ryn Estate.—The profit includes £981 from farm revenue for the financial year.

Glynn's Lydenburg.

The following are the particulars of the output for the month of June, 1920, in respect of the above company: Tons crushed, 3,482, yielding 1,124 fine ozs.; estimated value of month's output, £5,537; estimated profit for the month, £12. The month's results are based on a value of £5 2s. 6d. per fine oz., less realisation charges.

Union Corporation.

Results of operations on the producing mines of this group for the month of June are:

Company	Stamps.	Tons Crushed.	Fine Ozs.	Total Revenue.	Revenue per ton.
Geduld Proprietary .	100	43,000	15,222	£73,275	31/ 1
Modder Deep Levels	70	42,100	22,147	105,399	49/ 9
Totals	170	85,100	37,369	£178,674	—

Company.	Costs.		Profit.	
	Total.	Per Ton.	Total.	Per Ton
Geduld Proprietary ...	£51,827	24/ 1	£21,418	10/ 0
Modder Deep Levels ...	48,156	22/ 9	57,243	27/ 0
Totals	£99,983	—	£78,691	—

The above results are arrived at by calculating the gold produced at £5 2s. 6d. per fine oz. Realisation charges in excess of normal are debited direct to revenue account.

Princess Estate.—Clean-up operations were conducted during the month, from which 2,580 ozs. fine gold were recovered.

Transvaal G.M. Estates.

The following are the particulars of the output of the Transvaal G.M. Estates for the month of June, 1920: Central Mines: Tons crushed, 11,300, yielding 3,772 fine ozs. Elandsdrift Mine: Tons crushed, 1,470, yielding 1,029 fine ozs. Vaalhoek Mine: Tons crushed, 1,820, yielding 711 fine ozs. Estimated value of month's output, £26,253; estimated profit for the month, £6,352. The month's results are based on a value of gold of £5 2s. 6d. per fine oz., less realisation charges. The reduced tonnage at Central Mines was due to the strike of natives.

'Phone 4673. Box 3162.

OSBORN'S
DRILL STEEL (solid and hollow).
TOOL ,,
ALLOY ,,
SPRING ,,
SHAFTING ,,
PLATE ,,

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
"DALY" TAPPETS.
TRUCK WHEELS & AXLES.

"TITAN" MANGANESE STEEL.
CRUSHER SPARES & MORTAR BOX LINERS.

MUSHET HIGH SPEED STEEL.

Files, Shovels, Saws, etc.

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

Barnato Group.

The results of operations of the Barnato group for June are as follow:

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	45,000	£65,628
Government Areas	200	130,000	259,338
Langlaagte Estate	200	41,350	70,050
New Primrose	110	20,500	21,054
New Unified	60	11,100	14,722
Randfontein Central	600	151,000	196,556
Van Ryn Deep	90	50,200	127,114
Witwatersrand	215	35,200	50,904
Totals and averages ...	1575	484,350	£805,366
May totals	1575	471,150	£790,053

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ...	£56,787	25·238	£9,080
Government Areas	154,018	23·695	105,086
Langlaagte Estate	56,863	27·503	13,367
New Primrose	20,460	19·961	753
New Unified	12,742	22·958	2,042
Randfontein Central	192,381	25·481	5,460
Van Ryn Deep	67,270	26·801	61,051
Witwatersrand	46,171	26·233	6,491
Totals and averages ...	£606,692	25·052	£204,330
May totals	£622,295	26·416	£172,965

Note.—The above results are arrived at by calculating the gold at £5 2s. 6d. per fine oz.

Monthly Gross Profit.—January, £290,567; February, £174,380; March, £241,002; April, £159,352; May, £172,965; June, £204,330.

Consolidated Mines Selection Group.

The following are the results of operations for the month of June:

	Stamps Working.	Tons Milled.	Working Costs per Ton Milled
Brakpan Mines	110	49,500	29/ 2·907
Springs Mines	80	34,700	32/ 11·833
Totals and averages ...	190	84,200	30/ 9·423

	Value of Gold declared.	Yield per Ton.	Working Profit based on standard value of Gold.	Working Profit per Ton.
Brakpan Mines ...	£83,245	33/ 7·611	£10,870	4/ 4·704
Springs Mines ...	69,680	40/ 1·933	12,449	7/ 2·100
Totals & averages	£152,925	36/ 3·891	£23,319	5/ 6·468

	Estimated Premium taking Gold at £5 2s. 6d. per fine oz. after allowing for exchange on value of Output.	Total Estimated Profit.
Brakpan Mines	£10,605	£21,475
Springs Mines	8,622	21,071
Totals and averages	£19,227	£42,546

Brakpan Mines.—Gold reserve unchanged, 3,724 fine ozs.

Springs Mines.—The profit for the month was adversely affected by a sectional strike on the mine, which commenced on the 1st June, and resulted in the loss of practically five days' work.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits or losses for the month of June of the undermentioned companies of the Consolidated Gold Fields group:

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs	Profit
Simmer and Jack ...	320	7	60,100	14,174	£4,447
Robinson Deep	170	10	57,100	18,687	8,340
Knights Deep	400	11	90,000	16,746	*3,242
Sub Nigel	30	2	10,700	6,432	7,616
Totals	920	30	217,900	56,039	£17,161

* Loss.

Gold in Reserve.—Simmer and Jack, 500 ozs.; Sub Nigel, 2,200 ozs.; total, 2,700 ozs.

Valuation of the gold has been taken at 102s. 6d. per fine oz., less realisation charges of 7s. per fine oz.

The Lonely Mine.

The following are particulars of gold, etc., from the Lonely Mine for the month of May, 1920: Mill ran, 700 hours; crushed, 4,650 tons; fine gold recovered, 1,805·356 ozs., value £7,595 17s. 3d.; slimes treated, 4,650 tons; fine gold recovered, 3,404·087 ozs., value £14,326 7s. 4d.; total fine gold, 5,209·443 ozs.; total value, £21,922 4s. 7d.; profit, £9,689.

African Oil Corporation.

With reference to the report of Mr. Mills Davies, the consulting engineer of the African Oil Corporation, published in our last issue, we are authorised to state that assays taken from the shale seam at 40 feet in the development drive show a result of 44 gallons of crude oil per ton of 2,000 lbs.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams: "THAINE."

SIX MONTHS OF GOLD WINNING.

A Valuable Analysis of the First Six Months of 1920—Figures for the Whole Industry and for Individual Mines—Form at a Glance for Investors,

Returns for the month of January, which have come to hand up to the time of going to press must be considered distinctly satisfactory for a short month. The two premier houses - the Central Mining and Investment Corporation and the Johannesburg Consolidated Investment Company, for example, have declared profits of £323,637 and £204,330, as compared with £288,321 and £172,965 respectively in the preceding month. In respect of both corporations substantially improved returns are to be observed for several subsidiaries. The City Deep, for example, with a record tonnage crushed (86,000 tons), has declared a profit of £38,202, as compared with £25,520 in May; and the Modder B. profit has advanced from £43,621 in April and £49,185 in May to £57,894 for last month. As to the crushing companies included in the Barnato group the Randfontein Central, which has been operating at a loss for months, has returned to the profit earning list with £5,460. Government Areas again exceeds the hundred thousand standard with £106,086, and the Langlaagte Estates profit has advanced from £8,890 to £13,367. In regard to the Far East Rand subsidiaries of other corporations, Modder Deep and Geduld have declared much the same profits as in the preceding month, and Springs, considering the strike at that property, must be considered to have done fairly well with an earning of over £20,000.

In view of the depressed condition of the market during the past week or two these figures must be considered very encouraging, and though working costs are still abnormally high, and must obviously be reduced if several of the lower grade mines are to survive, it is not surprising that share quotations are making some recovery from the slough of despond into which numerous causes have recently cast them.

At this period of the year, when dividends for the first six months have been declared, investors are naturally anxious to note the financial results secured for the first half of the year, and in the following tables will be found statements of the output and profit results secured by the Rand as a whole, and for individual mines in so far as such returns are available for the first six months of this year. Unfortunately detailed figures for some have not yet been announced, but the schedules given hereunder give a reliable view of the present economic situation along the Reef.

A summary of results for the first five months of the year is as under:—

	January.	February.	March.	April.	May.
Tons milled ...	2,038,092	1,869,180	2,188,104	2,065,446	2,117,725
ozs.	653,842	607,918	689,645	667,926	681,551
Dwts. per ton	6·375	6·460	6·264	6·417	6·385
Value per oz.	107/6	110/0	105/0	102/6	105/0
Revenue	£3,495,460	£3,281,960	£3,467,618	£3,248,759	£3,364,447
Revenue per ton	34/4	35/1	31/8	31/5	31/9
Total working costs	£2,458	£2,637,389	£2,751,008	£2,714,819	£2,746,300
Working costs per ton	24/2	28/3	25/2	26/3	25/11
Realisation charges per fine oz....	1/0	5/0	6/3	7/6	8/9
Profit	£1,036,859	£644,571	£716,610	£533,940	£618,147
Profit per ton ...	10/2	6/10	6/6	5/2	5/10

The following table shows how exchange rates and a lesser price for gold have diminished the revenue of the mines during the past few months:—

	Price of gold. per fine oz.	Realisation charges per fine oz.	Net value per fine oz.
January .. .	£5 7 6	1/0	£5 6 6
February	5 10 6	5/0	5 5 5
March	5 5 0	6/3	4 18 9
April	5 2 6	7/6	4 15 0
May	5 5 0	8/9	4 16 3
June	5 2 6	7/0	4 15 6

AURORA WEST.

Capital: £106,353 (10s. shares). Loan from General Mining and Finance Corporation, £9,084.

1920.	Tons.	Revenue.		Cost.	Loss.	
		£	s. d.	s. d	£	s. d.
January	14,200	17,614	24 9	24 7	*111	0 2
February	11,900	15,592	26 2	29 10	2,183	3 8
March	14,000	15,542	22 2	25 9	2,491	3 7
April	12,800	14,888	23 3	27 1	2,419	3 10
May	10,240	13,190	25 9	25 9	*6	—
June	10,400	14,040	—	26 1	*480	—

*Profit.

Working on selective mining basis.

BRAKPAN MINES.

Capital: £850,000; issued, £823,600.

1920.	Tons.	Revenue.		Cost.	Profit.	
		£	s d.	s. d	£	s. d.
January . . .	48,400	110,730	45 2	28 8	39,880	16 6
February	43,000	101,881	47 5	32 7	31,906	14 10
March	52,300	103,835	39 8	29 3	27,284	10 5
April	38,500	82,878	43 1	34 7	16,373	8 6
May	47,200	93,847	39 9	30 10	20,973	8 11
June	49,500	83,245	33 7	29 3	21,475	

Dividend: 2s. 6d. June; 3s. December; 3s. June.

Original area, 1,150 claims, 1,812 claims leased from Union Government; also 425 claims on Schapenrust.

Gold reserve, 3.724 fine ounces.

CITY DEEP.

Capital: £1.250,000 (£1 shares).

1920.	Tons.	Revenue.		Cost.	Profit.	
		£	s. d.	s. d.	£	s. d.
January . . .	56.000	128,076	45 4	26 9	52,079	18 7
February	47.500	106,619	44 11	33 11	26,033	11 0
March	62,500	124,944	40 0	27 5	39,297	12 7
April	60.000	118,876	39 8	27 9	35.706	11 11
May	78,400	144,402	36 10	30 4	25,520	6 6
June . . .	86 000	161,716	—	28 9	38,202	—

Dividend: 1s. June: 1s. 6d. December.

CONSOLIDATED LANGLAAGTE.

Capital: £950,000. Debentures, £75,000.

1920.	Tons.	Revenue.		Cost.	Profit.	
		£	s. d.	s. d.	£	s. d.
January . . .	43,500	63,978	29 6	21 8	16,864	7 9
February . . .	32,300	53,595	33 2	29 3	6,338	3 11
March	46,500	64,920	27 11	23 7	10,060	4 4
April	43 700	66,841	30 7	26 5	9,179	4 2
May	44,800	67,064	29 11	25 10	9,107	4 1
June	45,000	65,628	—	25 3	9,080	—

Dividend: 1s. June; 1s. 6d. December, 1s. June.

Life estimated at "at least 20 years" (March, 1916). Rights over 61¼ water-right claims purchased for 3.22 per cent. of profits of company from January, 1917.

CONSOLIDATED MAIN REEF.

Capital: £1.247,602

1920	Tons.	Revenue.		Cost.	Profit.	
		£	s. d	s. d.	£	s. d
January .	46,800	85,744	36 11	28 11	18,682	8 0
February . . .	39,600	73,553	37 2	34 6	5,279	2 8
March	48,400	84,101	34 9	30 5	10,422	4 4
April . . .	47,200	80,134	34 0	30 5	8,412	3 7
May	50,100	86,025	34 4	29 9	11,473	4 7
June	51,100	89,553	—	29 10	13,300	—

Dividend: 6d. June; 1s. 3d. December; 1s. 3d. June.

Arrangements to mine 26 claims of Bantjes.

CROWN MINES.

Capital: £940,106 (10s. shares). Debentures: £488,800

1920	Tons.	Revenue.		Cost.	Profit.	
		£	s. d	s. d.	£	s. d
January .	176,000	284,622	31 11	21 10	88,825	10 1
February . .	170,000	275,056	32 4	26 3	60,220	7 1
March . .	202,000	292,744	29 0	20 10	82,590	8 2
April . . .	182,000	260,677	28 8	23 5	47,696	5 3
May . . .	189,000	280,032	29 7	22 11	63,257	6 8
June . . .	190,000	279 674		23 0	61,041	

Dividend: 6d. June; 3s. 6d December; 2s. 9d. June.

Life: North of dyke, 11 years; total, 28 years.

Undermining rights on 106 claims purchased for annuity of £9,926 for 15 years from June, 1917.

DURBAN ROODEPOORT DEEP.

Capital: £440,000.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d	s. d.	£	s. d.
1920.						
January	23,000	36,851	31 9	33 6	2,107	1 10
February	23,900	41,995	35 2	36 6	1,637	1 4
March	24 800	38,273	30 10	32 8	2,313	1 10
April	20,000	30,219	30 2	41 6	11,317	11 4
May	21,700	33,178	30 7	33 9	3,414	3 2
June	24,100	35,202	—	31 3	2,511	—

Last dividend June, 1918—6d. per share.

EAST RAND PROPRIETARY MINES.

Capital: £2,445,897. Debentures, £788,970.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	125,000	177,972	28 6	23 10	28,842	4 7
February	106,000	156,883	29 7	32 3	*13,542	2 7
March	124,000	164,856	26 7	27 1	*3,108	0 6
April	128,000	162,433	25 5	27 5	*12,718	2 0
May	124,000	167,011	26 11	28 1	*7,079	1 2
June	128,000	170,421	—	26 2	2,697	—

*Loss.

FERREIRA DEEP.

Capital: £980,000.

		Revenue.		Cost.	Profit.	
	Tons	£	s. d.	s. d.	£	s. d
1920.						
January	34,100	57,652	33 8	25 9	13,427	7 11
February	35,200	57,578	32 9	27 5	9,395	5 4
March	36,000	56,749	31 6	26 1	9,734	5 5
April	32,900	53,318	32 5	26 6	9,716	5 11
May	32,000	51,865	32 5	28 0	7,040	4 5
June	33,300	48,877	—	25 11	5,823	—

Dividend: 1s. 6d. March; 1s. September, 2s. March.

GEDULD PROPRIETARY.

Capital: Authorised, £1,500,000; Issued, £1,171,229. Issue of 180,000 new shares at 35s. October, 1918, carrying options until December, 1921, on similar number at 40s.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d	s. d.	£	s. d
1920.						
January	45,000	89,483	39 7	22 8	37,973	16 11
February	42,000	81,926	39 0	23 5	32,786	15 7
March	45,000	79,758	35 5	23 5	27,095	12 0
April	42,000	72,028	34 4	24 4	20,992	10 0
May	43,500	75,131	34 6	23 11	23,088	10 7
June	43,000	73,275	34 1	24 1	21,448	10 0

Dividend: 1s. June; 1s. 3d. December, 1918. Dividend, two shares for every 25 provided out of those purchased from the Custodian at £2 per share for whole year ended December, 1919.

Dividend: 1s. 6d. per share June, 1920.

GELDENHUIS DEEP.

Capital: £585,753 (£1 shares).

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	48,000	70,197	20 0	26 1	*6,990	2 11
February	41,700	65,465	31 5	33 7	4,632	2 2
March	44,900	64,482	28 9	29 3	1,099	0 6
April	44,400	61,068	27 6	28 4	1,892	0 10
May	44,200	62,765	28 5	29 1	1,474	0 8
June	47,600	64,563		26 9	*840	—

*Profit.

Dividend: 6d. June: 1s. 6d. December; 6d. June.

Fall of hanging wall, April.

GOVERNMENT AREAS (MODDER).

Capital: £1,400,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d	s. d.	£	s. d
1920.						
January	111,000	240,848	43 5	21 10	119,757	21 7
February	102,500	231,676	45 2	26 6	96,045	18 8
March	129,500	270 483	41 9	23 0	121,430	18 9
April	125,000	251,468	40 3	22 11	108,321	17 4
May	122,500	257,384	42 0	25 8	99,980	16 4
June	130,000	259,338	—	23 8	106,086	—

Dividend: 3s. 6d. June; 4s. December; 4s. June.

GLYNN'S LYDENBURG.

Capital: £170,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d	s. d.	£	s. d
1920						
January	3,300	7,030	44 2	28 6	2,264	13 9
February	2,894	6,247	43 2	36 5	979	6 9
March	3,465	6,235	36 0	28 6	1,285	7 6
April	3,555	7,286	41 0	27 9	2,359	13 3
May	3,680	6,931	37 8	27 0	1,966	10 8

June, 3,482 tons; Profit, £12.

Dividend: 6d. June; 6d. July: 1s. 6d. January.

JUPITER.

Capital: £1,014,200. Intact area (December, 1918), 499 claims.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d	s. d.	£	s. d.
1920.						
January	22,600	28,649	25 4	25 0	*393	0 4
February	21,000	26,366	25 1	27 9	2,832	2 8
March	25,800	31,288	24 3	25 6	1,604	1 3
April	23,000	29,331	25 6	28 7	3,579	3 1
May	23,100	29,283	25 4	27 11	2,922	2 7

*Profit.

Dividend: Nil June; 3d. December, 1918.
Decision to close down, May.

KNIGHT CENTRAL.

Capital: £900,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d	£	s. d.
1920.						
January	20,300	36,926	35 7	29 11	5,780	5 8
February	21,800	36,026	33 1	32 6	625	0 7
March	26,250	38,607	29 5	27 9	2,219	1 8
April	24,400	36,030	29 6	28 5	1,378	1 1
May	25,100	36,460	29 0	27 3	2,214	1 9
June	26,200	37,572	—	26 8	2,662	—

*Loss.

KNIGHTS DEEP.

Capital: £743,526. Debentures paid off.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	88,800	81,222	18 4	17 2	5,098	1 2
February	88,700	91,595	20 8	17 10	12,717	2 10
March	96,000	85,398	17 9	17 11	*748	0 2
May	85,900	84,054	19 7	19 5	620	0 2
May	96,100	91,868	19 1	18 8	2,196	0 5
June	90,000	—	—	—	*3,242	—

*Loss.

Intact area (July, 1918), 332 claims.
Dividend: 9d. December, 1919 (first since June, 1917).

LANGLAAGTE ESTATE.

Capital: 886,500.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d	s. d.	£	s. d.
1920.						
January	35,650	50,912	28 8	23 11	8,326	4 8
February	24,700	41,629	33 8	36 8	*3,660	3 0
March	42,000	59,402	28 3	25 5	5,997	2 10
April	39,000	60,271	30 11	28 1	5,499	2 10
May	42,000	65,530	31 3	27 0	8,890	4 3
June	41,350	70,050	—	27 6	13,367	—

*Loss.

Dividend: 1s. 6d. June; 1s. 6d. December; 6d. June.
Twenty-two claims purchased from New Era, November, 1918.

LUIPAARDSVLEI ESTATE.

Capital: £472,012. Debentures £63,990.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	17,180	18,915	22 1	24 9	2,331	2 9
February	18,100	20,729	22 11	24 3	1,197	1 4
March	21,230	24,332	22 11	27 5	4,820	4 6
April	20,110	25,930	25 10	28 4	2,540	2 6
May	19,585	26,720	27 3	29 5	2,073	2 2

Sundry revenue about £900, not included.

Last dividend September, 1916 (6d per share).

Retrenchment scheme, May.

MEYER AND CHARLTON

Capital: £200,000.

		Revenue		Cost	Profit.	
	Tons	£	s. d	s. d.	£	s. d
1920						
January	13,000	45,467	69 7	26 5	28,064	43 2
February	11,900	43,391	72 11	28 5	26,506	44 7
March	13,030	40,520	62 2	26 10	23,049	35 4
April	13,000	40,888	62 11	27 0	23,334	35 11
May	14,200	44,513	62 8	25 7	26,347	37 1
June	14,050	47,206	—	26 1	28,899	—

11 per cent of profit payable to Government (water-right ground).
Dividend: 10s. June; 14s. December; 10s. June.

MODDER "B."

Capital: £700,000 (£1 shares).

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	56,000	140,132	50 3	23 8	74,826	26 9
February	43,500	111,919	51 5	29 8	47,397	21 9
March	52,500	115,522	44 0	25 8	48,223	18 4
April	50,000	111,118	44 5	27 0	43,621	17 5
May	50,200	116,785	46 6	26 11	49,185	19 7
June	51,500	124,634	—	25 11	57,894	—

Dividend: 9s. June; 9s. 6d. December; 6s. 6d. June.

MODDER DEEP.

Capital: £500,000 (5s. shares).

		Revenue.		Cost	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	44,000	125,737	56 10	21 0	78,854	35 10
February	39,600	115,505	58 4	22 2	71,632	36 2
March	43,900	115,883	52 9	21 3	69,226	31 6
April	41,100	103,769	50 6	22 8	57,134	27 10
May	40,800	104 568	51 3	23 1	57,534	28 2
June	42,400	105,388	49 9	22 9	57,243	27 0

Dividend: 9s. 6d. June; 10s. December, 1918; 10s. June (6s. 7½d. in scrip, being 1 for 20 and 3s. 4½d. in cash), all on £1 shares; December, 3s. 3d. on 5s. shares; 3s. per share, June, 1920.

NEW GOCH.

Capital: £550,000.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	15,400	16,302	21 2	23 0	1,443	1 10
February	14,000	14,834	21 2	27 3	4,264	6 1
March	19,700	17,257	17 7	20 11	3,313	3 4
April	18,800	17,011	18 1	22 3	3,906	4 2
May	16,500	17,721	21 6	21 3	*132	0 2
June	16,000	17,290	–	20 1	*555	—

*Profit.

Dividend: 1s. June· 6d. December, 1917.

Life: Three and a half years from June, 1916, plus working of 21 claims ex City Deep on participation arrangement. Another estimate 3-4 years from July, 1919, original mine and leased area. Expenditure on Development of leased claims charged to working costs from January.

NEW HERIOT.

Capital: £115.000.

		Revenue.		Cost.	Loss.	
	Tons	£	s. d.	s. d.	£	s. d.
1920.						
January	11,500	17.060	28 9	28 7	*8*	0 2
February	10,670	16.206	30 5	33 0	1,399	2 7
March	11,800	15,246	25 10	30 8	2,828	4 10
April	10 700	13,371	25 0	32 2	3,835	7 2
May	10,390	14,146	27 3	32 10	2,912	5 7

*Profit.

Last dividend, November, 1918.
Decision, end-May, to close down.

NEW KLEINFONTEIN.

Capital: £1,300,000 (issued £1,151,540, balance postponed owing to war).

		Revenue.		Cost	Profit.	
	Tons.	£	s. d	s. d	£	s. d.
1920						
January	50,200	80,534	31 7	28 9	7,167	2 10
February	47,500	73,317	30 10	32 1	*2,884	1 3
March	48,260	68,979	28 7	30 5	*1,414	1 10
April	50,440	66,994	26 7	28 2	*4,050	1 7
May	45,560	63,783	28 0	26 10	2,684	1 2
June	44,040	61,767	—	26 4	3,804	—

*Loss.

Last dividend, December, 1917 (1s. per share).

Apex reduction plant closed temporarily July, 1919. Capacity of Kleinfontein reduction plant, 54,000 tons. Apex mining and development stopped April.

NEW MODDERFONTEIN.

Capital. £1,400,000 (10s. shares).

		Revenue.		Cost	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	81,000	224,954	55 7	21 8	137,209	33 11
February	86,400	225,953	52 4	24 0	122,440	28 4
March	96,000	227,649	47 5	21 2	126,209	26 3
April	86,000	211,025	49 1	23 2	111,590	25 11
May	86,000	212,333	49 4	23 7	110,885	25 9
June	84,600	206,825	—	22 9	111,382	

Dividend: 26s. June; 30s. December, 1919; 4s. 6d. June.

Data given as at 30th June, 1919; Area exhausted 270 claims; area in ore reserve, 281 claims.

NEW PRIMROSE.

Capital: £325,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	17,000	19,098	22 7	19 5	2,626	3 1
February	16,000	18,868	23 7	22 11	518	0 8
March	19,000	19,495	20 6	19 8	785	0 10
April	19,100	20,279	21 3	20 8	524	0 7
May	20,000	21,671	21 8	20 8	1,007	1 0
June	20,500	21,054	—	19 11	753	

Dividend: 1s. December, 1917; 1s. June, 1919; 1s. December.

NEW UNIFIED.

Capital: £250,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	11,000	15,700	28 7	19 9	4,837	8 9
February	8,900	13,788	31 0	25 0	2,663	6 0
March	11,000	15 203	27 8	22 9	2,681	4 11
April	10,600	14,860	28 0	23 1	2,595	4 11
May	10,300	14,829	28 9	24 3	2,331	4 6
June	11,100	14,722	—	22 11	2,042	—

Dividend: 1s. June; 1s. December; 1s. June.

NOURSE MINES.

Capital: £827,821 (£1 shares).

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	41,000	71,676	33 10	28 2	*11,982	5 8
February	34,700	69,049	39 11	38 11	*1,536	0 11
March	43,800	74,430	34 0	31 7	*5,315	2 5
April	38,500	64,218	33 4	33 5	162	0 1
May	42,500	67,391	32 8	30 9	*1,979	0 11
June	42,800	67,036	—	30 8	1,315	—

Decision to spend £100,000 in opening up southern section.

PRINCESS ESTATE.

Capital: £107.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	18,500	26,676	28 7	31 7	2,731	2 11
February	16,400	23,326	28 5	33 6	4,121	5 1
March	20,400	26,637	26 2	30 5	4,349	4 3
April	19 200	23.595	24 7	31 10	6,994	7 3
May	19,000	22,640	23 10	29 5	5,345	5 7

June clean-up operations, 2.580 [illegible] recovered.
Decision to close down, May.

RANDFONTEIN CENTRAL.

Capital: £4.500,000. Debentures £2.540,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	45,000	217,193	30 1	24 7	39,402	5 5
February	127,500	193.561	30 4	31 3	*5,952	0 11
March	150,000	214,740	28 8	28 0	4,960	0 8
April	130,000	164,375	25 3	30 11	*36,637	5 8
May	148,000	177,858	24 0	27 3	*23,957	3 3
June	151,000	—	—	25 6	5.460	—

*Loss.

Dividend: 6d. June 1915: none since.

Serious accident Block A shaft end March; shaft stripped from 10th to 19th level by fall of hanging. Tonnage and grade seriously affected three months.

ROBINSON.

Capital: £2.750.000 (£5 shares).

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	37.200	44.720	24 1	21 6	4.770	2 7
February	35,100	45,747	26 1	25 7	812	0 6
March	41,600	45,378	21 10	19 10	4.186	2 0
April	40,100	45,225	22 7	21 5	2,261	1 2
May	40,300	45,531	22 7	20 11	3.313	1 8
June	40.000	45.658	—	21 2	3,246	—

Dividend: Bonus ex bewaarplaatsen moneys, 5s. per share June, 1919; 2s. 6d. December: 1s. June, 1920.

ROBINSON DEEP.

Capital: 781,807 " B " shares. £1 each, and 500,000 ' A " shares, 1s. each. In reserve 118.193 " B " shares, partly under option.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d	s. d.	£	s. d.
1920.						
January	50,300	e86.323	35 2	27 3	20.003	7 11
February	50.100	90,862	36 2	27 2	22,802	9 1
March	55.200	91 043	33 0	26 10	16,933	6 2
April	51,200	90.466	35 4	29 5	15.058	5 11
May	52.500	87,633	33 4	31 11	3.746	1 5
June	57.100	—	—	—	8,340	—

(e) In addition, £2.940 taken from reserve.

Dividend: 4s. per " A " share June: December, 1917, dividend, postponed until June, 1918, when 2s. per " A " share; July, 1920, 2s. on " A " shares

ROODEPOORT UNITED.

Capital: £460.000. Loan from bank £362.150 guaranteed by General Mining and Finance Corporation.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	22,760	27,708	24 5	23 0	*1,627	1 5
February . . .	18,600	23,167	24 11	28 5	3,223	3 6
March	22.200	24.243	21 10	26 7	5,234	4 9
April	20,800	21.668	20 10	27 1	6.503	6 3
May	24,000	25,532	21 3	23 4	2,484	2 1
June	24.000	24.980	—	22 7	2.2.5	—

*Profit.

ROSE DEEP.

Capital: £700,000 (£1 shares).

1920.						
January	52.000	66.838	25 6	20 1	14,128	5 5
February	49.600	65.573	26 5	24 0	5,992	2 5
March	58,600	72.483	24 9	20 4	12.830	4 5
April	55,800	71.065	25 6	20 11	12.824	4 7
May	55,800	70.835	25 4	20 11	12.370	4 5

Dividend: 1s. 6d. June: 3s. 6d. December; 2s. June.

Life about five years, plus low-grade tonnage.

SIMMER AND JACK.

Capital: £3.000,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	46,100	57,873	25 4	23 6	4.292	1 10
February	46.100	62.573	27 2	24 6	6.126	2 8
March	47.000	57,359	24 5	27 2	*6.553	2 9
April	55.500	63 573	22 11	23 8	*2.044	0 9
May	56,800	75.591	26 8	25 5	3.506	1 3
June	60,100	—			4.447	—

Loss.

Dividend: Nil December: 3d June: 6d. December.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%,

Overseers.—22 Certificates out of a total of 35 in South Africa in 1920. Our passes during a recent 6 months (1919/20) were 95%.

Surveyors – Our new class obtained the only Certificate in South Africa, March, 1920, Examination.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

SIMMER DEEP.

Capital: £1.650.000. £489,400 First Debentures, £200,000 Second Debentures. Forty stamps and one tube mill loaned from Jupiter. Intact area (December 1918), 946 claims.

		Revenue.		Cost.	Loss.	
	Tons.	£	s. d.	s. d	£	s. d.
1920.						
January	45,800	51,767	22 8	22 7	*127	0 1
February	45,500	55,923	24 6	22 10	*3,814	1 8
March	43,700	49,997	22 10	27 3	9,751	4 5
April	47,400	53,386	22 6	25 10	7,786	3 4
May	50,500	58,547	23 2	22 11	*591	0 3

*Profit.

SUB NIGEL.

Capital: £775,000; 475,000 shares fully paid, 300,000 10s. paid, total £625.000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	9,600	28,789	60 2	40 11	9,253	19 3
February	9,200	30,009	65 3	43 6	10,009	21 9
March	10,300	32,227	61 7	43 6	9,837	19 1
April	10,100	31,230	61 10	41 9	10,150	20 1
May	10.300	32,234	62 7	49 8	6,660	12 11
June	10.700	—	—	—	7,616	—

Dividend: 1s. 4d. on fully-paid. 4d. on part-paid shares June; 1s. and 3d. per share respectively December: 1s. and 6d. per share June and December; 1s. June.

Life on 10,000 ton basis estimated at 25 years.

SPRINGS MINES.

Capital: Authorised, £1,800.000: registered, £1,300,000; issued, £1,196.736. Debentures, £114,910.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	40,500	97,691	37 8	28 4	39,125	19 4
February . . .	33,900	75.257	44 5	31 5	21,960	13 0
March	41,000	86.480	42 2	29 6	26,052	12 8
April	39,600	85.748	43 4	29 8	27.020	13 8
May	38,000	85,919	45 2	29 11	29,029	15 3
June	34,700	69,680	40 2	33 0	21,071	—

Dividend: 1s. June.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

TRANSVAAL G M ESTATES

Capital £604,225 Debentures, £3,940.

		Revenue		Cost	Profit	
	Tons.	£	s d	s d	£	s d
1920						
January	17,289	30,476	37 3	26 1	8,942	10 10
February . . .	15,760	31,185	39 7	34 4	1,162	5 3
March .	16,650	31,610	37 11	29 0	7,447	8 11
April . . .	16,760	27,794	33 2	29 2	3,366	4 0
May .	16,650	29,708	35 8	30 3	4,524	5 5
June .	—	26,253			6,352	—

VAN RYN ESTATE

Capital: £500,000.

		Revenue.		Cost	Profit.	
	Tons	£	s. d.	s. d.	£	s d
1920						
January . .	34,600	46,074	26 7	20 5	10,683	6 2
February . . .	34,530	46,216	26 9	22 9	8,319	4 9
March	37,450	41,969	22 5	18 8	7,047	3 9
April	38,000	43 777	23 0	19 4	6,978	3 8
May	37,750	42,629	22 7	19 11	5,053	2 8
June	36,800	43,406		20 2	6,236	

Dividend: 1s. June ;1s. 6d. December . 1s. 6d. June

VAN RYN DEEP

Capital: £1,196,892.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	51,400	143,120	55 8	22 2	86,196	33 6
February	46,900	133,779	57 1	27 1	70,340	30 0
March	53,000	149,627	56 6	25 3	82,755	31 3
April	46,100	127,924	55 6	28 1	63,145	27 5
May	46,500	133 677	57 6	29 1	66,075	28 5
June	50,200	127,114	—	26 10	61,051	—

Dividend: 4s. 6d. June; 5s. December; 5s. June.
An bonus distribution of New State Areas, 1 for 8.

VILLAGE DEEP.

Capital: £1,060,671 (£1 shares).

		Revenue.		Cost.	Profit	
	Tons.	£	s. d.	s. d.	£	s d.
1920.						
January	44,000	72,068	32 6	29 0	7,772	3 6
February	33,500	59 928	35 9	39 0	*5,358	3 3
March	47,800	68,343	28 7	28 9	*349	0 2
April	46,300	68,369	29 7	31 1	*3,541	1 6
May	47,900	73,966	30 11	27 8	7,815	3 3
June	44,800	73,175	—	29 6	7,068	—

*Loss.

Dividend: 1s. 3d. December · 6d. June.

VILLAGE MAIN REEF.

Capital: £472,000.

		Revenue.		Cost	Profit.	
	Tons.	£	s. d.	s. d.	£	s. d.
1920.						
January	20,900	27,907	26 6	23 4	3,287	3 2
February	17,400	25,354	29 2	28 0	1,023	1 2
March	18,400	25,120	27 4	27 2	137	0 2
April	16,400	22,913	27 11	27 3	543	0 8
May	15,700	24,478	31 2	28 5	2,160	2 9
June	16,300	24,620	—	26 10	2,732	

Dividend: 2s. June; nil December. Distribution one illage Deep for four illage Mains, June, 1919. 2s. December.

WEST RAND CONSOLIDATED

Capital: £2,004,424. Debentures, £349,990

		Revenue		Cost	Profit	
	Tons	£	s d	s d	£	s d
1920						
January	29,720	40,898	27 7	25 8	2,859	1 11
February	25,730	39,580	30 9	31 11	*1,527	1 2
March .	32,300	44,219	27 5	27 4	101	0 1
April .	33,300	43,801	26 4	26 0	494	0 1
May . . .	33,450	46,130	27 2	25 9	3,001	1 10
June	31,800	43,716		26 10	1,053	

*Loss.

WITWATERSRAND

Capital: £475,000; issued £469,625

		Revenue.		Cost.	Profit	
	Tons.	£	s. d.	s. d.	£	s. d
1920.						
January	31,200	45,473	30 2	23 8	8,545	5 6
February . .	32 750	49,689	30 4	26 5	8,087	4 11
March	39,500	55,985	28 4	22 5	11,617	5 11
April .	37 250	52,729	28 4	25 0	6,122	3 1
May . . .	37,050	56,526	30 6	25 9	8,811	4 9
June	35,000	50,904		26 3	6,491	

Dividend: 1s. June; 1s. December; 1s. June.
Sundry revenue about £1,750 not included.

WITWATERSRAND DEEP.

Capital: £550,000.

		Revenue		Cost	Profit.	
	Tons.	£	s. d	s. d.	£	s. d
1920.						
January	28,020	40,737	30 5	25 7	6,710	1 9
February . . .	30,200	43,467	28 9	25 6	5,082	3 4
March	34,300	44,800	26 1	24 0	3,620	2 1
April	34,200	45 539	26 8	25 4	2,274	1 4
May	32,000	36,245	22 8	25 7	*4,642	2 11

*Loss.

WOLHUTER.

Capital: £860,000.

		Revenue.		Cost.	Profit.	
	Tons.	£	s. d	s. d.	£	s. d.
1920.						
January	29,800	45,048	30 5	22 8	11,482	7 9
February	29,700	50,466	34 0	27 1	10,295	6 11
March	31,700	43 924	27 8	23 0	7,446	4 8
April	30,000	41,222	27 6	24 8	4,174	2 10
May	32,500	41,215	25 4	23 5	3,151	1 11
June	32,000	41,165	—	23 6	3,499	—

Dividend: 1s. 3d. April.

Witbank Municipality is taking its power supply from the Witbank Colliery.

During last month the Municipal Council of Johannesburg approved of plans for new buildings, including alterations and additions, to the value of a quarter of a million pounds. The figures would suggest a great boom in the building trade, but it is the cost of labour, skilled and unskilled, and the price of material, rather than the number of buildings in course of erection, that are responsible for so large a figure. As a matter of fact, there was more activity in the building trade in Johannesburg during 1903-5 and in 1910, when the cost was, according to reliable estimate, just one-half of what it is at present.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Phones 2596-7.

Telegrams: "DELTA."

HEAD, WRIGHTSON & CO. (South Africa), LTD.

P.O. Box 1034. JOHANNESBURG. Telephone 3524.

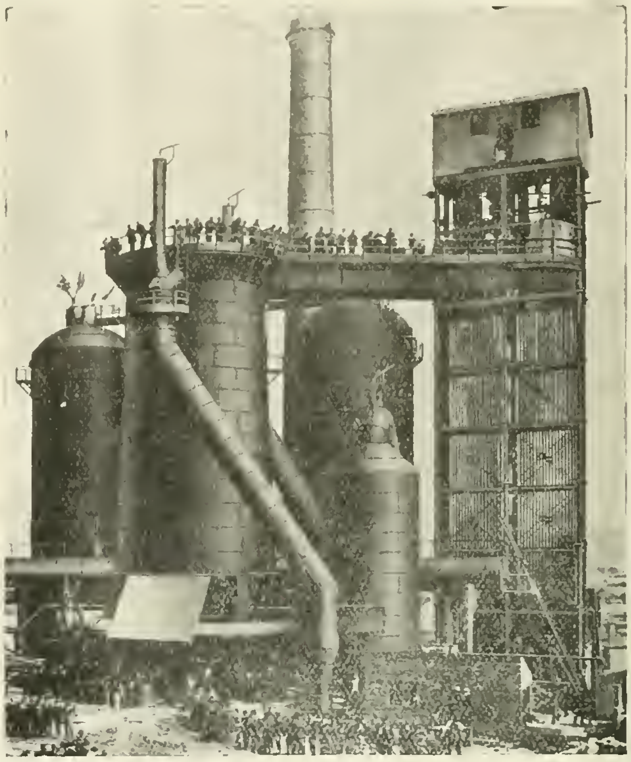
SPECIALISTS IN

Blast Furnace Plant,

GOLD & COAL MINING PLANT, COAL WASHING PLANTS, Etc.

Send for Descriptive Catalogues.

JOHANNESBURG OFFICE:
47-48, STANDARD BANK CHAMBERS,
COMMISSIONER STREET.



United Asbestos African Agency,

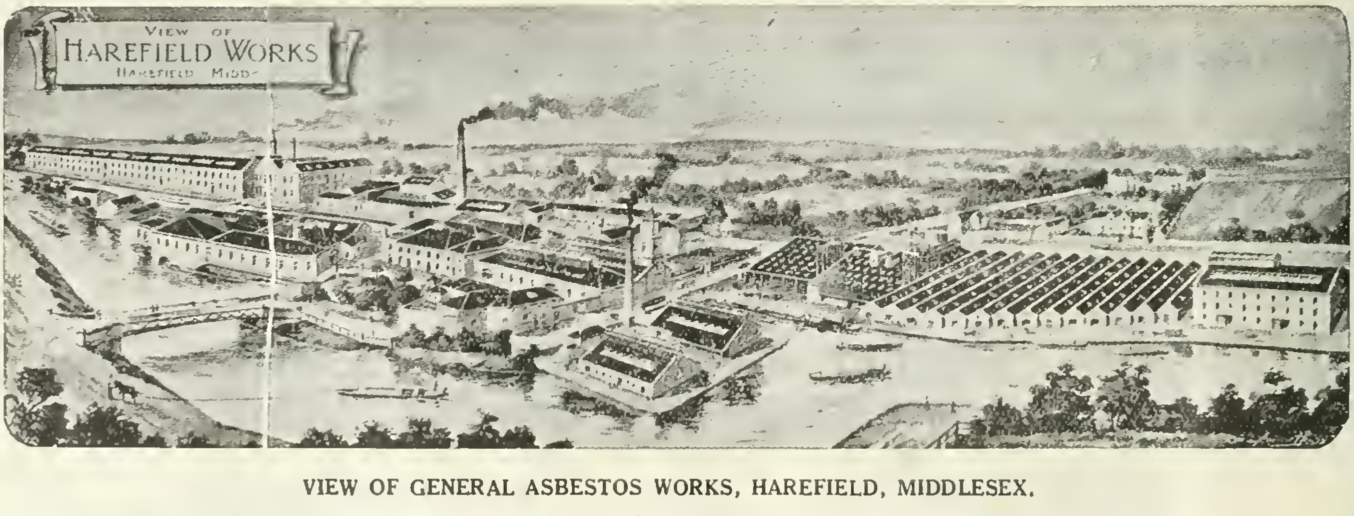
LIMITED.

Telephone No. 1345, Central. 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR

BELL'S UNITED ASBESTOS CO., LTD.

(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD).



VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

"GLADIATOR" ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of "Gladiator" Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

THE WEEK IN THE SHAREMARKET.

Firm After Heavy Liquidations—A Better Tone—State Mines and Frank Smiths Better.

In the early part of the week the market, on account of forced liquidation, receded to the lowest levels recorded for years. Springs Mines, for instance, were sold at 28s. 3d., Modder Deeps at 10s. 6d., New Modders at a shade over 60s., and Modder Bs. at 111s., whilst Modder Easts were dealt in at 18s. 3d. The collapse in prices is mainly attributable to realisation on a large scale in consequence of losses on Modder Easts and inability by many holders of option rights to convert into shares. In many quarters the banks are blamed for not rendering financial assistance to clients at a critical period, and at one time during the week it was feared that there would be several failures. Only one such failure has, however, been reported and this for no large amount, and on Tuesday afternoon the market registered a slight improvement. Largely aided by the substantially better profits declared in respect of the June operations the market registered a continuance of improvement throughout Wednesday, and most of the dividend-paying stocks regained what they had lost. Anglo-Americans advanced 4s. and all the Modders and Far East and Central and Western Rand shares alike registered substantial gains. Modder Easts improved to 21s. 6d. But the pace was made a little too hot and an easier tendency was observable at the closing and on Thursday. Prices are, however, now much firmer and although anxiety is felt in some quarters as to the upshot of the Spa Conference, the general belief is that the worst is over. Diamond stocks have shared in the advance. Frank Smiths have been notably firm throughout the slump and are now in demand. Crowns, after declining to 6s., have improved to 7s. Transvaal Silver and Base Metal options, after declining to 12s., have recovered to 16s. In tins, Leeuwpoorts have been firm. African Oils are quiet around 13s. Western Rand Estates are firmer at 3s. 6d. buyers in anticipation of the early arrival of Mr. D. J. Pullinger.

	Fri., 2nd.	Sat., 3rd.	Mon., 5th.	Tues., 6th.	Wed., 7th.	Thurs., 8th.
Anglo-Amer. Corp.	29 0	26 3*	25 0*	26 9	29 0	28 9*
Bantjes Cons	2 3a	2 3	2 3*	2 4*	2 4*	2 3*
Breyten Colls.	—	—	—		—	8 0*
British South Africa.	15 0*	15 0*	—	15 0*	—	—
Bushveld Tins	—	—	1 6†	—	—	—
Cinderella Cons.	4 6†	4 6†	4 6†	4 6†	4 6†	4 6†
City and Subs.	5 6*	5 0*	5 3*	5 3*	5 6*	5 6*
City Deeps	—	—	40 9*	42 0*	42 0	—
Con. Main Reefs	10 3	10 0*	10 3b	10 3*	10 6*	11 0
Coronation Freeholds.	1 1*	1 0*	1 0*	1 0*	1 4†	1 0*
Crown Diamonds	7 0	6 0*	6 0	6 3	7 3	7 0
Crown Mines	—	—	39 0*	40 0*	—	—
Daggafontein Mines	8 3	8 0*	8 0	8 0*	8 6*	9 0*
Do. 5 years options	0 9*	1 0*		0 9*	—	
East Rand Coals	—	—	2 3	2 3*	2 3	2 3*
East Rand Deeps	0 6*	—	0 6*		—	0 6*
East Rand Props.	—	5 9*	5 9*	6 3	6 6	6 6*
Eastern Golds	1 0*	1 0*	1 6*	1 0*	—	1 0
Frank Smith Dia.	13 3	13 0*	13 0	13 3	11 1½	11 6
Geduld Props.	—		£36 6†	35 0*	35 6	—
Ginsbergs	—	1 0*	—	—	—	1 0*
Glencairns	—	1 6*	1 6*	1 6*	1 6	—
Glynn's Lydenburgs	—		—	—	10 0*	—
Hume Pipes	22 6*	22 0a	22 6*	22 6*	22 6*	23 0a
Government Areas	77 6	76 6	76 6†	74 0	76 0	78 0
J'burg Bd. of Exec.	37 6*	37 6	37 6*	37 6	37 6*	37 6*
Jupiters	—	—	2 0*	2 6*	2 0*	2 0*
Klerksdorp Props.	2 0*	2 0*	2 0*	2 0	2 0*	2 0*
Knight Centrals	3 3*	3 3*	3 3*	3 4*	3 6*	3 5
Knights Deeps	—	—	4 0*	1 0*	—	1 0*
Lace Props.	8 9*	8 9*	8 9*	8 9*	8 9*	8 6*
Leeuwpoort Tins	18 6	18 0*	18 6	17 9	18 0*	18 0
Lydenburg Farms	7 3*	7 3*	7 3*	—		6 9*
Middelvlei Estates	1 3*	1 3*	1 3*	1 3*	1 3*	
Modder B's.	110 0*	112 6a	110 0	110 0*	113 6*	116 3*
Modder Deeps	13 0	12 0*	11 1	10 6	12 0	11 6
Modder Easts	21 0	29 0	19 0	18 9	20 9	20 6
Do. 3 years options	5 10	5 3*	1 9	5 3	6 2	5 11
Do. Debentures	£110	£107½	£107	£105½*	£100	£107½
Modder Wests	13 6*	13 9*	13 6*	13 6*	13 6*	13 6*
Natal Nav. Cols.	21 6*		—	21 6*	22 0*	22 0
National Banks	£13		—	—	—	—
New Boksburgs	—	—	—	1 6*	—	1 0*
New Eland Dia.	62 6*	62 6	67 6†	65 0†	65 0†	65 0†
New Geduld Deeps	—	—	1 7*		1 7*	—
New Kleinfonteins	5 3	5 3*	5 9†	5 6*	6 0*	6 0
New Modderfonteins	63 0*	62 6	61 6	60 9*	63 9	63 9
New State Areas	—	25 0	25 0*	—	25 6	25 6
Nourse Mines	7 0*	—	7 0*	7 0*	7 6*	
Pretoria Cements	107 6	107 0	107 0†	106 0*	107 0	107 0a
Princess Estates	0 6*	—	0 6*	—	0 6*	0 6*
Rand Nucleus	—	—	—	1 0*	1 1*	1 1*
Randfontein Deeps.	4 6*	5 0†	5 0	4 6*	5 1	5 3
Randfontein Estates	15 6*	16 0*	15 6	15 0*	15 9*	15 9*
Roberts Victors	12 6*		13 9†	13 6†	13 6†	—
Rooibergs	8 0*	6 0	6 9†	6 9†	6 3*	—
Rouxville Dia	21 0	23 0	22 0	20 0*	21 3	20 6
Shebas	—	2 0†	1 3*	—	2 0†	—
Simmer Deeps	0 6†	0 3†	—	0 6†	0 3	—
S.A. Alkalis	20 0	19 0a	20 0†	19 0*	19 0	21 0
S.A. Lands	—	3 11*	3 10*	4 0†	3 10*	3 11*
Southern Van Ryns	7 3*	7 3*	—	7 3	7 6	7 3*
Springs Mines	31 3	30 6*	29 9	29 0	31 0	31 0
Sub Nigels	—	—	11 9	11 6	11 6†	11 0*
Trans. G.M. Est.	—	9 6	9 0	—	—	9 3*
Transvaal Silvers	—	10 0†	—	—	35 0a	37 6*
Union 5 per cent.	£98†	£98	£98*	£98½	—	£98½
Van Ryn Deeps	78 0†	76 6†	76 0†	72 6*	75 0†	70 0*
West Rand Cons.	3 6*	3 6*	3 6*	3 6*	3 6*	—
Western Rand Est.	3 0*	3 3*	3 0*	3 0	2 6*	2 9*
West Springs	13 0	12 6*	12 9	12 0	13 6	13 0
Wit. Deeps	—	8 0†	—	6 0†	6 0*	6 6*
Wolhuters	3 0*	—	2 6*	—	3 0*	2 9*
Zaaiplaats Tins	6 9*	6 9*	6 6*	6 6*	6 11	6 9*

*Buyers. †Sellers. aOdd lots. bEx London.

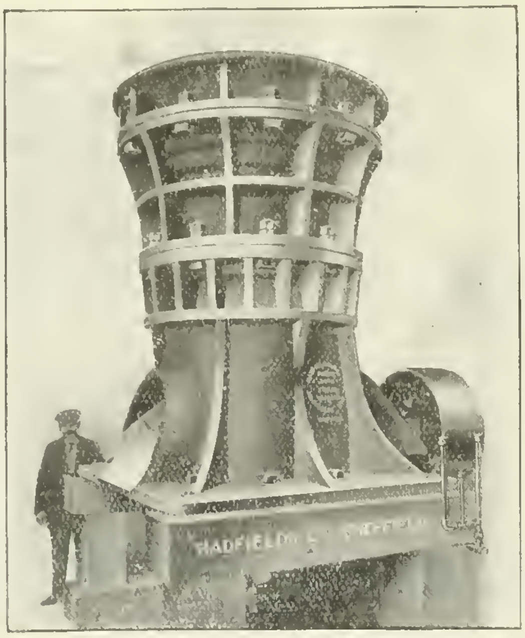
Inefficiency and Working Costs.

The Iron Trade Review, of New York, recently published an interesting article, proving the truth of the theory propounded by practical economists that one of the most serious points of weakness in the present era of phenomenal industrial activity and prosperity lies in the amazing increase in the unit cost of production accompanied by diminished efficiency and lower output for each individual employee as measured by pre-War standards. Striking evidence of the truth of this theory is revealed by an analysis of the annual reports of a number of the most important steel companies. Taking the reports of the United States Steel Corporation, the Republic Iron and Steel Company, and the Midvale Steel and Ordnance Company, as the basis for inquiry, it is found that while the average wage cost per ton for the three companies in 1919 increased 162 per cent., the average output per man declined 21 per cent. as compared with 1913, save in the case of the Midvale Company when the comparison is with 1916. In the last full year preceding the War the abnormal standards of thought and action which now are apparent on every hand were absent, and labour was giving something approximating a fair day's work for a fair day's wage. Last year, with Labour's income at unprecedented levels, its productivity was at low ebb. The records of the steel industry's experience with Labour in 1919 makes it evident that production was curtailed not only by the actual strike but by slacking on the job on the part of men actually at work. Of the three typical companies considered, which are the only ones supplying complete data covering the points in question, the Midvale Steel and Ordnance Company was the worst sufferer in point of decreased output per employee. During the first year of the company's organisation, 1916, each employee produced an average of 50·1 tons of finished material. By 1918 this record had been reduced to 42 tons, and 1919 saw the average fall to 36 tons. At the same time the wage per ton of steel product shipped had jumped from $18.95 in 1916 to $46.67 in 1919. The heavy falling off in employees' productivity in the case of the Midvale Company is all the more remarkable in view of the fact that it is the only one of the three companies which had in operation in 1919 a plan of employees' representation.

'HECLON'

ROCK AND ORE BREAKER

(HADFIELD & JACK'S PATENT)



HADFIELDS L^TD^..

Works area over 200 acres.

East Hecla and Hecla Works,
SHEFFIELD, ENGLAND.

Workmen employed during the war, over 15,000.

Head Office, S.A., 46-47 Cullinan Bldgs., Johannesburg.

Bulawayo Agents, WHITMORE & JACKSON, 17-18, Agency Chmbs.

Salisbury Agents, P. PEECH & CO., Angwa Street.

Natal Agents, T. BARLOW & SONS (S.A.) Ltd., Smith St., Durban.

MAKERS OF ALL KINDS OF

Stone Breaking and Ore Crushing Machinery

including GYRATORY, JAW & DISC CRUSHERS

Renewals and Wearing Parts supplied for every known make of Machine

MINING REQUISITES

of every description.

SPECIAL FORGED STEEL BALLS FOR BALL AND TUBE MILLS. SHOES, DIES, GRIZZLEY BARS, CRUSHING ROLLS, JAW FACES, CONES, CONCAVES, ROLLERS AND FRAMES, PULLEYS, WHEELS AND AXLES, ETC.

ERA

Trade Mark.

Sole Makers of Hadfield's Patent

MANGANESE STEEL

THE SUPREME MATERIAL

for the Wearing Parts of Stone Breaking and Ore Crushing Machinery, Railway and Tramway Track-work, &c.

THE

STRAITS TRADING COMPANY

LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—

THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF

TIN ORE CONCENTRATES OF ALL GRADES

FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—

THE STRAIT TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

THE KOMATI GOLDFIELDS—A RETROSPECT.—III.

[By James Cumming.]

It was the quest of gold and silver that took the Spaniards across the Atlantic. That was the age of bronze and copper. They in turn yielded to the age of iron. Latin America to-day stands as it did rich in its precious metals and oil, and as a source of nitrates, vanadium, tin and platinum. Apart from gold and diamonds, South Africa has made only spasmodic attempts to locate the rare metals which were in great demand during the War. To find them in payable quantities would give the Union an importance equal to that attained by her gold output. In the Komati valley the itinerant prospector will find a fine field of investigation for these rare metals. There is also gold: of that there is not the least doubt. No geological imagination on the part of the prospector is needed. Practical experience of the work is the only requirement. He is not like the mine manager who is dependent on the tactful way he handles his responsible men in addition to his highly technical abilities to maintain his output, be it gold or coal. Application and persistence on the part of a prospector will do the rest. The Komati valley presents a peculiarly interesting problem from the point of view that it contains gold, tin and platinum. The intelligent prospector is wanted to point the way. The "call of the wild" is an indefinable passion in man. "Prospecting is a necessity to the mining industry," says Mr. W. H. Grant in an American mining journal. "In the economics of the world there are two basic industries upon which most activities of life depend. Without either of these, the present methods of living, as they are found in organised society, could not exist. The industries are agriculture and mining." Prospecting for ore is the very first step in mining. Following prospecting comes exploration, development, mining, transportation, milling, smelting, marketing, manufacturing, and on to the consumer. All these steps depend upon first finding the ore or mineral. After prospecting comes the exploration stage. There is not such a sharp line of demarcation between these stages as one is led to believe. Most of the so-called mines in the valley of the Komati are not out of the prospecting period. In my previous papers I accounted for the desertion of the mines to the glamour of the Rand, but the experience of most exploration companies the world over has been that about one mineral deposit in 400 coming to their attention has developed into a productive mine. Judged by my own experience the average success of the prospector must be much less. In spite of that the search is continued and for many and various reasons. If we encourage mining it will last for centuries. Near my home in Fifeshire there is a colliery belonging to the Wemyss family that has been in continuous operation for over four hundred years. Mining is the most permanent industry known. Wherever I go in this country I travel over thousands and thousands of acres of fertile lands that are almost barren wastes, but the only quarter where I can locate abandoned mines which might be profitably operated are those in the Komati valley, and the reason for their being silent and lifeless I have already given. There are more square miles of what are practically abandoned acres in the Union than all the abandoned mines in the world.

Mr. A. L. Hall, Assistant Director of the Geological Survey, says, in his memoir on the "Geology of the Barberton Gold Mining District," that, while gold occurrences north of the Barberton mountain land are generally referred to as forming the De Kaap goldfields, the various auriferous deposits south of that feature are comprised under the name of Steynsdorp and Komati goldfields, which expresses their general situation round Steynsdorp, and in the Komati valley where they extend broadly from east to the west, that is, from the lower poort of the Komati River." "As a reliable source of gold these fields have proved disappointing." That is not to be wondered at, for the reason that several only reached the exploration stage and only one or two the producing stage. Among the last-named may be mentioned the Contractors, and the Comstock. There were also Dick's Luck, the Virginia, Violet, Ivanhoe, Thistle, and quite a number of others, all in the prospecting development stages. The most important mine was that of the Sheba Queen. Mr. Hall refers to this property in his memoir. He says, "not to confound it with the Sheba—the mine is situated on the south side of the Komati. Here a reef some 15 feet wide was opened." "The ore body is a hard, greenish or silvery greyish quartzose siliceous rock highly mineralized by pyrites. A special feature of the Sheba Queen mine is the local variation of the reef due to coarse crystalline grey siderite." Mr. A. P. D. Hodge was once manager of this mine, and he speaks favourably of it. The principal workings, he says, "consist of a drive, N.E. and S.W. on the reef for over 200 feet at the 150 ft. level; exposes a great width of pyritic ore, of good value as per fire assays, some giving results of 4 ozs. 17 dwts. 4 grs. This level has 7,500 tons ready for stoping. The 225 ft. level shows a splendid reef 8 ft. to 10 ft. wide. Values according to assays are not under 30 dwts. per ton, and Mr. Hodge estimates 35,000 tons are developed. The ore is pyritic. There are other two reefs on the property. One 2 ft. 6 in. running 10 to 12 dwts. The other is from 3 ft. to 4 ft. wide, which gives fair values in free gold." He maintains the property, which is of great length and width, has not even been prospected. The facilities are the best possible. This mine has been inspected by different mining engineers at various periods of its chequered career, and not one has condemned it. Instead they have all recommended continuation of operations with a view to bringing it to a producing stage. A sample of 5 tons was sent to London. On treatment it yielded 5 ozs. 12 dwts. 18 grs. to the ton, and of the rare metals of platinum it ran 10 dwts. 6 grs. to the ton. The platinum was discovered in the ore by the late Professor Sir Wm. Ramsay. The late Mr. Francis Oates, accompanied by an engineer, once inspected the mine, and made a cash offer for it, which was refused; and a similar attempt was made to obtain possession by the Pullingers, which also met with a refusal. Relying as I do on the possibility of work restarting on the Sheba Queen, now designated the Great Komati Mine, there is a belief that several other properties in the neighbourhood of Steynsdorp would repay careful exploration. When the boom was on in this particular part of the Transvaal, a quarter of a century or more ago, the principal object of promoters and shareholders alike was to sell their holdings, caring little whether their mines extracted ore, or even reached a milling stage. In consequence this once promising district suffered. Is it not safe to hazard this opinion that, where there were undoubted occurrences of gold, rather widely distributed I admit, there must be some more than promising? Surely a few, even though it might be one only, out of the number would produce gold of a payable nature. With sane and careful mining, even with costs abnormally high as at present, more than one might give desired results. The day is gone when mills were erected as they were in those long ago times before sufficient ore was sighted to maintain them. If the new order was established with any good property—and there is more than one fair mining venture to my knowledge—in the almost forgotten Komati valley when it gets another chance, and there is no mining reason why it should not, there will be rational ground upon which to forgive those who began at the wrong end.

(Previous articles appeared in our issues of May 22nd and June 19th.)

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent

INDUSTRIES FOR RETURNED SOLDIERS.

Coal Mining Not Suitable—Some Alternative Constructive Proposals.

In the daily press this last week we have the announcement that a certain public-spirited gentleman has made an offer of a coal field for the benefit of returned soldiers. No details are given, but to be of use it would require to be worked by these men. We have no wish to throw cold water unduly on this project, but in the interest of the men themselves we feel that we should examine this project somewhat closely. No details of the seams to be worked are published, but we will presume that the field is equal to other working collieries. Now if the proposal is to work a colliery on the usual lines with native labour and white supervision it will only employ a very small proportion of the men. The writer was manager of a colliery recently where the total white men employed numbered 22. The output was almost 1,000 tons daily, so that a colliery on the usual lines absorbs less white labour than average mining. If, as we take it, the proposal is to employ all white, then, in the men's interests, we feel called upon to sound a note of warning. Without going too closely into the figures of any one mine, we may say that the price of coal as it comes from the pit may be taken as 5s. Picking, sorting or classifying come on after that. Now, of that 5s., sixpence will probably require to be knocked off for duff and unsaleable coal. Stores which have to be paid for take at least another shilling, so that even at the best there only remains 3s. 6d. to be divided amongst the wage-earners. We think that even in the easiest worked seams it may be accepted that three tons per man per day would be the limit and that would be for trained miners in the pink of health and settled down to make their living at the work. For every two men employed at the face one is employed taking away coal, that is, tramming, hauling, banking, screening, and so on. This would bring down the available earnings to 7s. each as a maximum, and the maximum the hewer could get would be 2s. 4d. per ton. These figures, whilst only approximate, may be taken as fairly representative of what would obtain in an average colliery in this country. How many returned soldiers could go into a colliery and turn out three tons daily? We are afraid there are very few who would earn over 5s. at the coal face. At 5s., or even 7s., everyone would look upon the work as pauperising, and they would get away from it at the earliest opportunity. This continual shifting would still further lower the efficiency, as Col. Creswell found out at the Village Main at the end of the Boer War. At that time the writer employed some 50 men in a coal mine, where he was then manager. The result was as Col. Creswell found it. The men got 4s. per ton, as coal was then at a higher price. A few men who had been coal miners at Home earned 12s. to 14s. per day, others down to 2s. 6d. The good men were quickly absorbed in their proper sphere; the others got disgusted and drifted away. In white America the average unskilled working man does not go in for coal mining. The actual hard spade work is mostly done by a lower type of whites imported from Central Europe—Dagos, Poles, Lithuanians, etc.—under the supervision of an intensely developed administrative force. Even in Britain this holds good to a certain degree, as in Lanarkshire until the War there were about 50,000 Poles employed. We think it is a very much misapplied effort to try and plant unskilled returned soldiers, some not in the best of health, in an industry where great muscular effort is almost all that is required from three-fourths of the employees. In this country, with so much cheap coloured labour available, we should never try to bolster up the white man by legal means to make work for him which can be more cheaply and as well done by the native. In the U.S.A., after 200 years, the black man has never been a competitor or succeeded in ousting the white where intelligence and deftness are wanted. The class of work the native is adapted for is not wanted by the white, and it is no use trying to fit men into natives' work after they have borne the brunt of war. Many of our returned men are not in the best of health and certainly not muscular. What good, then, of offering them purely muscular work at a rate not much better than good native earnings?

So much for the mining proposals, and our criticism of them. It would be poor consolation for our men if all we could say was to turn down a possible chance of their absorption in industry and offer no other alternative. There are many openings which can be made in this country to absorb all the returned men and many more, allow them to earn good wages without any colour bar and live a settled comfortable life without loss of dignity or debasement to the poor white stage. We postulate a few heads of what we think is a suitable class of employment for our men. It must be congenial, so that a man can settle down to work for a long time so as to get dexterous and attain to highest proficiency. It must not entail too great muscular effort nor demand more than average brain power. It must demand a higher intelligence and deftness than a native seems fit for, so that the men will feel that they are above the native. There are many industries awaiting development in this country answering these conditions, but in this article we will only name two.

Bootmaking.—There are certainly boot factories already at work in this country, but there is room for many more. Especially we would leave the cheap class selling at a few shillings and go for the high-class article, such as a gentleman pays £3 or £4 for without murmuring, and a lady goes into a fashionable shop and wants these little fine things, pays six or eight guineas without blinking and still thinks she is a candidate for the Presidency of the Economy League. Take the Saxone factory in Kilmarnock with which the writer is acquainted. In that factory the lowest-paid girl will to-day be earning as much as an able-bodied man could expect to make in the coal mine proposal at Ermelo. The men earn much more. It is not a trade that requires an apprenticeship. We don't suppose there are many men in that factory who could make a boot or shoe from start to finish. The work is subdivided to a degree. Each individual does his little bit with a speed and deftness that a native could never attain. The period of learning is short, so that full wages are soon earned. A lame man or one without legs is often as good as a muscular giant. A one-armed man can often be placed and be as useful as many with two. The writer spent a year in Kilmarnock about 1916 before many of the War-maimed were about and was much surprised at the amount of " Class C 3 " men, as the military call them, there were in that town. It almost seemed as if every tenth person you met suffered from some physical defect. The reason was that there are many factories in and around that town where the work suits those men, broken in other work, or born with less of nature's gifts than normal, and this class drifts there from all over the country. We have all the raw products here and every facility for doing this work, and above all it is white men's work. The value of the goods in proportion to the weight is high, so that the factory could be started in any country district near the railway, where health and congenial surroundings could be at the making of the men themselves.

The second industry we would mention is wool manufacture. This also is established already, but there is room for ever so much more. The south-west of Scotland again furnishes good examples of what can be done in this with persons of less than normal physique. Yarn spinning, underwear, stockings, tweeds, etc., are all to be seen in full swing. Every operation from the wool scouring to putting the price ticket on the finished article can be seen between Glasgow and Ayr. But, to the writer the crowning triumph of what can be done by philanthropy skilfully and practically applied is the " Blighty " factory making the famous Blighty tweeds on the outskirts of Edinburgh. Every man in the factory has been in the army overseas or has some direct connection with the army. For instance, a disabled man could have his daughter or wife helping him. You will there see men with one leg, ditto with one arm, and so on. A nice factory laid out on modern lines in a pleasant locality and all earning good money. No doles or pauperising them, and above all it is run on business lines and pays, so that the philanthropy was only needed to start. What a difference compared with any mining scheme, even if they don't lift the "big cheque" or phthisis money. Need we say more?

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Business Quieter—Banks' Hands on the Throttle—The New Bank Bill—The White Standard Buildings and Properties Sluggish—Blue Hydraulic Lime—The Hume Pipe Industry—Electrical Goods—Iron, Steel and Mining Materials.

The July month opened disappointingly, as it was expected that after the turn of the financial income tax year business would improve. But the banks show no signs of relaxation, but rather the other way, as balance sheets are wanted, and these are scrupulously examined, and facilities are often curtailed, and very seldom increased. All this is attributed to the heavy exchanges between here and London, also the new Reserve Bank and the control of gold. On the face of the Government's proposition there is the making of something good, but how it will eventually react on our financial world is very problematical. Therefore it is essential from a banker's point of view to guard against all contingencies. It will be a different Bill at the end as compared with its present details, but it can easily be altered after the practical experience so necessary when launched upon a sea of differences amongst the experts. One feature lacking is the absence of some finality, or reconsideration, as it may be that the price of gold may never recede to pre-war rates. Nevertheless, it is absolutely necessary for the Government to press the Act through as quickly as possible, as the uncertain position is hanging up trade, and damping the ardour of new enterprises. And the shipping people still say that South African exports are delayed at the Coast because of the heavy exchange rates. They are getting full cargoes from England, but very seldom a good homeward cargo. There are now the regular weekly mail services, and three to four intermediate boats during a month by the Union-Castle Company, and there are the other lines, so we are now pretty well served with European shipping, with every prospect of increases from month to month. A commercial traveller from the Transvaal, Orange Free State, and the northern part of the Cape says there is no room for pessimism in his itinerary, as the gradual progress in the ironworks, collieries, manufactories, and the general prosperity of the farmers are marvellous. He made a special point of the fact that the country is different from what it was a few years ago, when it was on a dead farming level, as now the different villages are alive with small propositions, chiefly led by the motor car industry. This no doubt is getting a big factor in opening up the highways and byways of South Africa.

THE WHITE STANDARD.

There was an important meeting held at Benoni on Sunday last, in reference to a secretary being fined for sending letters demanding recompense from employers for engaging coloured people. As this was done under the authority of the Joint Masters and Men Control Building Board it has a significance of more than ordinary importance. The Chairman of the Joint Board remarked that the building works in Johannesburg and other areas are constantly visited, and it was often found that a deplorable state of affairs existed in bad workmanship and sweating. The enemy to the industry was a section of the community who sought to enrich themselves at the expense of the skilled worker by employing other workers at a less rate of pay. The intrusion of private persons into the building industry was a distinct menace, as they were out to save the builders' profits, etc. The problem was how to get at this section. They had no heart or sentiment, so the Board set out to touch their pockets, and as a result there had been an improvement. There is another problem, and that is what can be done with the semi-skilled and the coloured element, as well as the cosmopolitan contractors so prominent throughout all trade circles. The writer has been a student of this subject for many years, and it is one bristling more or less with difficulties as the years roll on. The fact is that the natives have learned much from the organisation of the white trade unionists, as remember we have Oxford and Edinburgh University natives as editors of their own newspapers, also lawyers, and so forth. Now seeing there are six and a quarter million natives to one and a quarter million whites, they cannot be ignored and put on the shelf. Therefore instead of high falutin' speeches, the problems as mentioned at the Benoni meeting will have to be tackled very seriously, and it seems in a more or less conciliatory manner. It must be admitted that it is not nice for an artisan who has served a five years' apprenticeship to have to rub shoulders with one who has just picked up his trade, anywhere and anyhow. Without going into details, for obvious reasons, undoubtedly there are many trades here with easier access than in any other part of the world, when men who are considered unskilled in the Old Country become full-fledged skilled artisans (according to their society) in the space of as many months, nay sometimes weeks, as compared with years in the older spheres of apprenticeship. Even many of these new conditions have come to stay, simply because of the marvellous machinery now in existence, and no doubt to be improved upon. Therefore under these new conditions trades unionists will have to adapt themselves to the new order of things. Fancy what big monies were earned in making munitions, and how quickly the manipulators, both men and women, got into the work, and most expertly at that. There is a meeting of coloured workers at Bloemfontein on Monday next. That's No. 1. No. 2 is the new Government's Native Bill, to find a vent for their opinions and aspirations aspirations is an excellent word. No. 3 is the missionary and educational work, also very important. Therefore since one cannot hope to keep them back, the question is how to square the aspirations with those of the white workers? Many theories will have to go by default, but the great fact remains that the white man will have to keep ahead in his various trades and occupations. The world is starving for leaders and if the white man is not sufficiently smart and clever to be the leader of the coloured man, the inevitable must come, which can be better imagined than explained. A little may be done by unions and organisations, but assiduity and a fair day's work will do much—very much—to keep the white standard afloat.

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg

BUILDING MATERIAL AND PROPERTY.

The building trade has slackened off considerably for the smaller class of residences, because the strictly speculative builders are standing on one side, chiefly because of the new Rent Bill, and partly for financial reasons, as the banks are not so accommodating as they were, also it is not so easy to obtain big loans; that is to say, loans just over the usual margin required by the speculative element. As regards the auction sales this week, the biddings were slow and disappointing after the slight revival noticed when the Rent Bill became an accomplished fact. There is no alteration in the price of timber. The only feature is the still continued shortage of 3 x 9 solid deals. Bricks continue easier, as regards deliveries, but prices are much the same. Stock bricks 70s. to 80s., delivered in town, and wire-cut and pressed £6 to £7 per 1,000. The local kilns are now competent to supply local demands, and there are plenty of bricks in the outside yards.

BLUE HYDRAULIC BUILDING AND PLASTER LIME.

Trade in this section has been quiet, in keeping with conditions generally. There is, however, still a steady demand from country districts for good hydraulic lime, owing to the new uses this commodity has been put to through the continued scarcity of cement. Many contractors, on account of this shortage, are mixing hydraulic lime with cement in different proportions, but the mixture of one part lime, one cement, and seven parts sharp sand is considered the best. The best method of doing this is to mix the sand and cement dry, and then add the lime mortar (mixed to a very thin consistency), and add any further quantity of water required. In the same way a concrete can be made by substituting a certain quantity of screened stone in place of the sand, and experiments have proved same to be strong, lasting, and in many cases just as suitable as using Portland cement alone.

An eminent authority on the subject, General Scott-Moncrieff, R.E., the great military engineer, whose work is well known during the war, says, in "Principles of Structural Design":—"With care and manipulation, hydraulic lime may often be applied in such a way that the strength of the resulting mortar falls little below that made from good Portland cement and the same proportions of sand. . . . This has been conclusively proved by an exhaustive series of experiments. . . . . It would appear, therefore, that in future greater attention will be paid to the proper manipulation of hydraulic lime mortars in masonry, rather than trusting implicitly to the more expensive Portland cements."

Another cause for the insistent demand from the coast was the fact that contractors at one time would use nothing else, being able to obtain as much cement as they required; they were ignorant as to the uses of hydraulic lime, but after having used it and found it more plastic than cement mortar, and therefore easier to work with, for brickwork and general plastering, they are gradually adopting similar mortar as the local contractors.

There is still a lot of inferior hydraulic lime on offer under standard rates, therefore builders are always on the alert to see that they get the right product.

THE HUME PIPE INDUSTRY.

This company has been successful in securing orders for the reticulation services for the water supply of Vryburg and Standerton. They have also just completed the water supply of Grahamstown and Montagu. Orders for considerable quantities of piping have been received for large irrigation schemes. Arrangements have now been completed to acquire an additional 12 acres of land at Germiston, and, in addition, a further site at the north-east corner of the existing property has been acquired for the extension of the wire reinforcement department. The equipment for the Hume Pipe Factory at the Cape is now practically complete, and within the next month or so the factory there should be in full swing. The company recently took over the Belleville Brick and Tile Co., Ltd., near Capetown, and, in addition to manufacturing Hume pipes, etc., are now turning out first-class bricks.

ELECTRICAL GOODS.

Dealers advise that electrical materials are now coming in fairly freely, more particularly fittings, which are very welcome after the late acute shortage. Wood blocks, which have also been in great demand recently, are also coming in plentifully. Notwithstanding the influx of electrical goods, it is not expected that prices will recede, but rather, in view of the numerous uncompleted orders on hand, that prices will go even higher. As a matter of fact, the past week has witnessed a rise generally in electrical goods. Lamps are now 27s., 28s.; lamp-holders, ceiling roses and adaptors, being practically unprocurable, are unquotable. Business in the country is very good, but in town it is not so brisk, and has not been so good as usual during the past fortnight.

IRON AND STEEL.

A business visitor from America states that at present his factories cannot accept new orders with guaranteed delivery, but now the American railway strikers have taken off the embargo on manufactured goods this should relieve the situation very considerably. He hopes that by the end of the year the country's iron and steel factories will take all the outside orders available. In the meantime the works are on belated orders, and also to supply their own requirements. A commercial broker says that the local business is very indifferent, and things don't look nice. A member of the Commercial Exchange says that trading is quiet for the mines, but the fact of the few mines closing down is not noticeably disturbing the Exchange, simply because they have gradually dropped out of existence with their orders. There is a scarcity of imported hammer handles: 14in. size are 6s. 6d. a dozen, and 36in. longer handles 35s. Some time ago the mines had their handles made locally out of gumtree particularly: these are now found to be less economical than using the best quality of imported handles, but as the change was made somewhat suddenly there was a scarcity, because the merchants had suspended importation. Merchants are getting cautious and are not buying from one another to any extent. There is a scarcity of wheelbarrows, and the lowest quotation is 70s. to 80s. Brass rods have receded from 2s. 6d. to 2s. lb.: ditto plates, 2s. 6d.; 1-8th steel plates, about 70s.; 3-16ths, 65s.; drill steel 7½d., hollow 1s.; shafting, 7½d. to 8½d.; wire nails, 55s. to 65s.; shovels, 65s. to 70s. a dozen. The merchant giving this information says that business on the Exchange has been exceedingly quiet, and, contrary to general expectation, the improvement looked for in the first week of July did not materialise; so far things have been worse than last month.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:

KELLY, BURNIE & CO.

Box 5260. The "KELCO" People. Phone 4333.

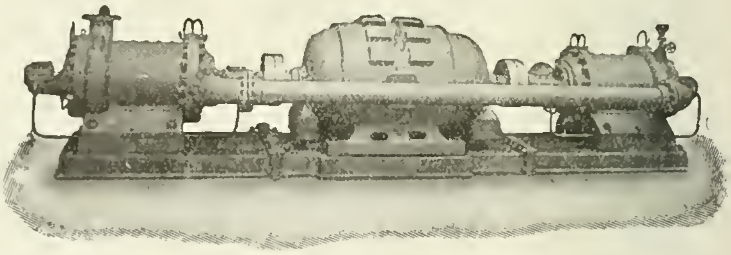
Corner Polly and Albert Streets, Johannesburg.

SULZER

HIGH-LIFT CENTRIFUGAL

PUMPS.

For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:

RICE, WILSON & HERD,

86, 87, 88, 96, Standard Bank Chambers, Commissioner St.

P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.

Also South African Agents for

CALLENDER'S CABLE & CONSTRUCTION CO., LTD.

BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries.

VOL. XXIX., PART II.] JULY 17, 1920. [No. 1503.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 469

Topics of the Week:

Banking and Currency Reform 471
The Randfontein Central and Randfontein Deep Merger 473
How to Turn our Coal Resources to the Best Advantage 474
Gold Certificates and a Central Reserve Bank 475
The Doom of the "Dry" Jackhammer 476
The June Output in Detail 477
Oil Shales and the Oil Shortage 478
Correspondence and Discussion: "Southern Van Ryn"; "Coal By-Products" 479
Mining Questions in the Union Parliament 481
Mineral Production of the British Empire 482
The Utilization of Waste Coal in South Africa 483
Have Base Metal Prices Touched Bottom? 484
The Week in the Sharemarket 485

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 487
Company Meetings: Victory Monarch 490

Notes and News.

Opening Up Wilgepoort.

Development of the Far East Rand South Company's farm Wilgepoort in the Balfour area is now proceeding apace. After establishing the existence of a most promising reef section, the opening up of the proposition was suspended pending completion of the deal with the Coronation Syndicate, but work was recently resumed and two large three-compartment shafts are being sunk on the ore body. The outlook is considered to be distinctly good.

* * * *

Butters Filter Company.

The Butters Filter Company have decided to close down their own establishment in Johannesburg, and their business in the future will be solely handled by the well-known firm of Messrs. Fraser & Chalmers (S.A.), Ltd., who have taken over the agency of the Butters Company. Mr. A. Hay Davidson, who has been managing the Butters Company here is joining the staff of Messrs. Fraser & Chalmers, and all matters pertaining to the business of the Butters Company shall be attended to as in the past, under the new arrangement.

* * * *

A New Work on Coal.

We learn from the "*Times* Engineering Supplement" of May, 1920, that a volume on "Coal," by Mr. J. H. Ronaldson, is to be published by Mr. Murray in the series of "Imperial Institute Monographs on Mineral Resources, with Special Reference to the British Empire." Besides tracing the history and growth of the industry the work treats of the classification of coal, the production, consumption and trading of various countries, and the geology and distribution of the known coal deposits of the British Empire, with details of economics and reserves. Maps and diagrams are included, and the volume concludes with a bibliography, and an appendix on calorific value.

* * * *

Insizwa Copper and Cobalt.

At the annual meeting of the Insizwa McKel Copper and Cobalt Developing and Mining Company, held at Kokstad, 69,230 shares were represented. Mr. J. W. Woolley, chairman, in an optimistic speech, moved the adoption of the reports. Major Nicol, M.D., Roberts Heights, has resigned his seat on the directorate, and Mr. S. Berning, solicitor, Kokstad, has been appointed to fill the vacancy. The report showed that development work on the company's property at Mount Ayliff has been resumed under the direction of Mr. Blundell, engineer of the syndicate. The resumption of mining operations along the Insizwa range after so many years' delay unquestionably presages the beginning of a new epoch in the general industrial development of the many and varied natural resources of East Griqualand and the Transkeian territories. Generally the mineral prospects of the mountain range have been elaborately investigated and highly favourably reported on by Mr. Goodchild, an eminent English engineer. The Insizwa Company has acquired the control of the whole area examined, amounting to 150 square miles, and naturally the company has had a difficult financial position to handle during the period preliminary to the investigating work, but working option on terms favourable to the Insizwa Company was recently granted to the London syndicate, which had undertaken the further exploration and development of the property. The cash capital required by the working company will exceed one million sterling.

* * * *

Modder West.

The chairman of the Modder West writes: "With reference to the assertions recently made through the press that the rich 'Modder West Reef' has been discovered on properties in the East and West Rand, please note that no new reefs have been discovered on our Modder West property. The rich reefs found by us either belong to the Government Reef series or the Van Ryn Reef series. Further developing and prospecting will ultimately show to what series they belong. In my opinion the reef will prove to be a portion of the Vyn Ryn-New Modderfontein-Modder B. Reef. I wish also to point out that the mine I have the honour to be chairman of directors of has no connection, nor has it had at any time any connection, with any other mine either on the East or West Rand."

* * * *

The Share Broker and Exchange.

Mr. D. C. Greig, of the Johannesburg Stock Exchange, in the course of his evidence before the Select Committee on the Embargo on Gold, made the following frank confession: "I make a considerable portion of my income out of exchange, and I must admit that the conditions which have obtained since the banks raised the rate of exchange so much have become very much in the nature of simple robbery. The people here do not understand the new situation which has arisen; it is altogether new to South Africa, and the result is that the public are practically fleeced by experts in exchange such as myself. I am working altogether against my own pocket so far as my evidence is concerned, but I deal with the question purely from an economic point of view."

* * * *

Rhodesia Broken Hill.

The latest news from Rhodesia Broken Hill is to the effect that prospecting work has yielded the following results: Trenches in blocks P, Q, R, 24, 25 and 26 have disclosed fair grade lead ore and a considerable amount of vanadium ore. A pit 30 ft. deep has been sunk on a small outcrop a little south-east of No. 3 kopje; a crosscut at that depth has disclosed ore over a distance of 30 ft. averaging 5 per cent. lead and 16 per cent. winze. An adit crosscut is being driven at the eastern end of No. 2 kopje; 57 ft. of zinc ore has been passed through, and the footwall has not yet been reached. The main shaft is being sunk with little interference from water, the cementation having thus far proved effective. The erection of the third lead smelting furnace is well advanced, and most of the material for the fourth furnace has been shipped. Foundations for the new 1,000 k.w. power house are in place, but progress is being hampered by delays in shipment of materials from England. Two metallurgists, with special experience in the treatment of zinc ores, have arrived at the mine, and will erect the necessary experimental plant for working out the required details for the construction of a plant for the recovery of zinc on a commercial scale.

* * * *

Deep Mining in Rhodesia.

Mr. C. B. Kingston, consulting engineer to the Lonely Reef Gold Mining Company, which is now one of Rhodesia's premier producers, points out in his annual report that it has become a deep mine and presents all the problems of a deep mine. The principal problems, he adds, are hoisting and ventilation. The hoisting problem is being dealt with by increasing the capacity of the winding engine on the inclined shaft and by the use of an auxiliary winding engine installed at one of the deep levels for use in shaft sinking. This engine will be moved down to the 23rd level during the current year. The ventilation problem is being dealt with by sinking an auxiliary incline as a permanent return air way for the levels below the 9th level. This auxiliary incline is connected with an existing air way above the 9th level. A determination of rock temperatures was made during the year and the rate of increase in temperature found to be a rise of 1 degree Fahrenheit per 160 ft. in depth. Temperature of the rock at the 21st level is 90 degrees Fahrenheit. The large volume of dry pure air supplied by the fan makes the working conditions good, although the temperature of the air varies only a few degrees from the temperature of the rock. The rise in temperature of the rock with depth is moderate, and the temperature of the mine will present no obstacle to carrying development to a much greater depth. Under these deep mining conditions the working cost per ton is unavoidably high, the more so because of the comparatively small tonnage handled. To increase the tonnage mined would necessitate such an increased rate of shaft sinking and development as is impracticable in a reef yielding a comparatively small tonnage per level. If the costs per ton imposed by the natural conditions are high the profit per ton is equally high owing to the fine grade of the ore. When the equipment of the mine was increased to carry the work to a depth of two thousand feet below the ninth level it appeared that ample allowance was being made. This depth has already been exceeded. The rich developments met with in the deep levels call for a further increase of equipment to carry the work much deeper. This equipment will be provided, and meantime the work of development is being pressed on with the utmost confidence in view of what Mr. Kingston describes as the extremely encouraging prospects of the mine.

* * * *

Pomona Diamonds.

At a meeting of shareholders in the Pomona Diamond Gesellschaft held at Capetown, Mr. Parker, on behalf of the Johannesburg shareholders, raised a question of how the interests of South African shareholders could be safeguarded, in view of the arrangement with Mr. Hull. All the assets of the Pomona Company had not been sold to the new company, and certain reserve and other funds, and profits, would become available to shareholders; but the Government had not yet released the funds in the hands of the Custodian of Enemy Property, to enable the company to pay out a dividend and a portion of the surplus. He had been in communication with the Administrator of South-West Africa, who said he could not release the money until the Department of Mines had approved of the allocation. Martial law existed in the territory, and their only remedy was to request the Minister of Mines to have the examination expedited, and he had promised to do so, and they would know the result in a week or so.

* * * *

New Transvaal Chemical.

The report and accounts of the New Transvaal Chemical Company, covering the twelve months to June 30, 1919, are just to hand. The profit for the period is £72,943, which compares with £70,593 for the previous year and £74,136 for 1916-17. The transfer to depreciation account has been increased from £8,383 to £9,412, and it is proposed to repeat the distribution of 20 per cent. on the ordinary shares and to carry forward, subject to liability for excess profits duty (if any), £7,141, as against £11,640 brought in. It is stated in the report that the stocks have been valued at prices which, as far as can be foreseen, provide against possible loss from depreciation or other causes. The balance sheet shows: Sundry debtors and debit balances, £179,775, against £92,936 as at June 30, 1918; investments in and loans to associated companies at or below cost, £517,232, compared with £529,574; and stocks and stores on hand and in transit, less stock reserve, £149,824, in contrast with £65,699.

* * * *

Shaft-Sinking Records.

Competition for the world's shaft-sinking record is keen among makers of rock drills and contractors. This keenness has received, shall we say, a further "spur" by the offering by the New York *Engineering and Mining Journal* of a gold medal to the sinking crew who beats the present record of 310 ft. in 31 days. This record is held by Holman Brothers, and was created in July last year when sinking No. 15 circular shaft at Crown Mines, Johannesburg. The diameter of the shaft as broken was 21½ ft., the debris was hoisted from a minimum depth of 2,000 ft., and the rock broken was hard Rand quartzite. The present record in the United States is held by the Waugh drill, for sinking 308·2 ft. in 31 days, from a depth of 755·6 ft. to 1,063 ft., at the Van Dyke copper mine, Miami, Arizona. We do not know the exact nature of the rock, but it is said to be of the hardest. The *Journal's* action in offering a gold medal for competition is to be commended, for thereby the conditions under which the sinking is done will be properly investigated and the relative merits of the performances carefully weighed. The two records before-mentioned are properly authenticated cases, but, on the other hand, many claims for records have not been so acceptable, owing to the work having been done in much softer rocks. Also the efficiency of the workers is an important item in the relative merits of the results. This point is strongly emphasised by the terms of the *Journal's* offer; it is the crew that gets the medal, and not the drill. It is obvious that the best drill in the world will not prove its efficiency unless capably and enthusiastically handled. The offer of our New York contemporary has, to our mind, the great defect of being too general. Without wishing in any way to detract from its very creditable enterprise, we would prefer a competition confined to the Rand, where, owing to the comparatively small variations in the hardness of the rock, it is possible to measure more exactly the merits of shaft-sinking achievements. With this object in view, we propose in our next issue to offer a substantial inducement to the shaft-sinking crew *on the Rand* that beats the Crown Mines record.

* * * *

Our Coal, Iron and Steel Supplement.

With our issue of July 31st will be included an important supplement dealing with the steel and iron and coal industries and resources of South Africa. The tremendous potentialities of the Union as a producer of iron and steel are only now beginning to be realised, and in this special supplement it will be our endeavour to give a general idea of the immensity and value of the iron beds of South Africa which await exploitation, of the various enterprises which within the past few years have ushered in the dawn of a steel manufacturing epoch, and of the tremendous markets which are available locally, and possibly overseas too, for a South African iron and steel industry. Hand in hand with the iron and steel industry marches the coal industry. In this as in every other country the fates of iron and steel enterprises are indissolubly mingled with the extent and prosperity of the coal mines, and in this special number we shall review the fortunes of the South African collieries in the light of all the many important developments which have taken place since our special coal supplement was issued at the beginning of the year. The future of the iron and steel industry of South Africa is a matter which so closely touches upon our national life and future that we feel sure that this forthcoming coal, iron and steel supplement, which will be copiously illustrated, will receive world-wide attention, and those who desire copies of the publication are earnestly advised to book their orders well in advance.

* * * *

Mr. Whitehouse's Straight Talk to Miners.

Mr. J. Whitehouse, the newly-elected President of the South African Institution of Engineers, said in his inaugural address that it would be his earnest endeavour to bring about co-operation between the University and the Institution. They might point the way to the advanced students who were anxious to undertake research work, and in turn benefit by the labours of those students. Continuing, he said: I would also invite workmen employed on these fields to similarly strive to attain that efficiency which alone can prove effective in these difficult times. The necessity for greater effort on the part of the employees of these fields is, I venture to say, fully realised by their leaders, and one can only hope that their followers will be guided by their advice. The enforced closing down of some of the low-grade mines will have demonstrated to them that the mysterious source of wealth which many have imagined to exist, but the origin of which they have not troubled to investigate, is nothing more than the result of the work performed by all in any particular industry, and that, in common with undertakings all over the world, it is necessary to obtain at least the equivalent of the money spent in any business to justify its continued operation. This being so, it is clear that as the production of gold from the lower grade mines becomes less, it will be necessary to reduce the cost of handling the ore from which it is obtained, or operations must cease. The unions must be prepared to face the position from a broad point of view, for if their outlook is to be a narrow one, they will bring disaster to thousands on these fields. In these circumstances it is expedient for them to give up their old-fashioned ideas of colour bar, and to allow the native population to progress as it is competent to do, and in this way they will retain a large measure of employment for themselves, and afford the native the opportunity to progress which is undoubtedly due to him. This question must be seriously considered by the large community which indirectly derives it livelihood from these mines, and if they are silent at this time, and allow a comparatively small section to bring ruin to their door, they cannot complain when their living has been taken away.

TOPICS OF THE WEEK.

BANKING AND CURRENCY REFORM.

"I AM *afraid*," said one of our most prominent financial authorities yesterday, "that the Bill will go through." That in a nutshell sums up the opinion of the ultra-conservatives of the Rand on Mr. Burton's speech and Bill. The *Star*, we notice, extends a mild and magnificent benediction to the really sound and able speech made by the Minister in introducing the Bill, and the *Rand Daily Mail* follows with very tardy, qualified approval. Indeed, the press of the Rand, which place must be primarily affected by this, the biggest step in the monetary history of South Africa, is singularly sparing, not to say reticent, in its criticism and comment on the proposed measure. Parliament, of course, is suffering from much the same sort, or rather degree, of reticence. The long-winded speeches of the critics in the Assembly merely seem to give us a rehash of the evidence led before the Select Committee, and tell us nothing new. By the time these words appear in print the second reading of this most momentous Bill may have been accomplished and the Bill in the Committee stage, and therefore any suggestion offered must be of the severely practical kind. Moreover, the people of the Rand must not be altogether silent in a matter which so closely affects their destinies. Therefore, we may offer the suggestion, based on the fact that the provisions of the Bill dealing with the formation of a National Reserve Bank, are "lifted" direct from those of the American Reserve Bank Act, that the 40 per cent. gold reserve should be a little, say 10 per cent. (*i.e.*, 50 per cent. in all), larger than that of the American Federal Reserve Bank. The reason is that we are the largest gold producer in the world and that "paper is the enemy of gold"—our product and our friend. Beyond this we can only repeat what Mr. Strakosch, in his reply to his critics, said at Capetown. In fairness to Mr. Strakosch, it should be said that he disclaimed being a heaven-sent solver of economic problems. "All I offer," he declared once, "is merely an *expedient* to meet our present and pressing difficulties." "It is well," he said, "at the outset to state that there is no divergence of opinion among all the witnesses—myself included—that it is desirable to restore our currency to a true gold basis at the earliest possible moment. Opinions differ only in regard to the manner and time in which that desirable goal is to be reached. That is (apart from the reorganisation of our credit system) the only question at issue; but it is a most important one because upon its solution on right lines very largely depends the degree of economic well-being of the country during the admittedly difficult period of restoration which is ahead of us. . . . More than four months have elapsed since I wrote my memorandum on the currency and exchange problem. I have given much further thought to the subject in the light of events which have occurred since that time in South Africa, as well as in other parts of the world, and in the light also of the evidence tendered by other witnesses. But I have no reason to modify the views which I then formed. I then ventured upon some rather bold prognostications. These have come true to an even greater extent than I then dared to anticipate. I refer especially to—'The continued and increasing disappearance from circulation of gold coin in this country; the consequent curtailment of banking facilities; the apparently anomalous position in the United States of America, where in spite of their enormous balance of exports gold is withdrawn to so large an extent as to create a position of considerable discomfort; the pronounced tendency to withdraw capital from countries with an appreciated currency such as is experienced by Canada and India; and finally, the disorganising and impeding influence upon industry of even the comparatively slight rise in the exchange value of our currency experienced since February last.' These developments, together with the endorsement of my views by two leading authorities to whom I have submitted them for their criticism, have fortified me in the belief that the proposals which I have made are those best calculated to meet the needs of the situation."

SIEMENS BROTHERS

& CO., LIMITED

CABLES

AND

WIRES.

OVERHEAD LINE MATERIAL

AND

EQUIPMENT.

TELEGRAPHS

AND

TELEPHONES.

MANUAL AND AUTOMATIC.

SIGNALLING APPARATUS,

FOR

RAILWAYS, MINES, SHIPS AND POWER STATIONS.

JOINT BOXES

TAPES, COMPOUNDS, CABLE ACCESSORIES, TOOLS, Etc.

PRIMARY BATTERIES

FLUID AND DRY.

Carbons for Battery Making.

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE RANDFONTEIN CENTRAL AND RANDFONTEIN DEEP MERGER.

Long Expected Scheme at Last Under Weigh—Directors' Strong Recommendation—Three Shares for Eight—Battery Reef to be Worked—Excellent Prospects.

As promised by Mr. John Munro to the Randfontein workmen the other day, the proposal to link up the Randfontein Deep with the Randfontein Central mine has now taken tangible shape. Special meetings of both companies have been called for September 16, to consider the provisional agreement that has been entered into. The main features of that agreement are that the Randfontein Deep sells to the Central, as from the 1st July, 1920, all its assets, with the liabilities attaching thereto, from that date (excluding only cash in hand), for a purchase price on the basis of 3 fully paid up new one pound shares in the purchasing company to be created for 8 shares in the issued capital of the Deep Company, which issued capital at present stands at £667,889. To accomplish this the Deep Company will go into voluntary liquidation. The directors of the Randfontein Deep strongly recommend to shareholders the adoption and confirmation of the agreement, which they consider to be greatly in the interests of shareholders. To effect the purchase the directors of the Randfontein Central propose to increase the capital of the company from £4,500,000 to £4,750,459 by the creation of 250,459 new shares of £1 each, and to issue them as fully paid-up to the Randfontein Deep. It may be remembered that at the recent annual meeting of the Randfontein Central the chairman said that the northern section of the mine had always been disappointing. The grade of the ore mined tended to get lower, and the little development that had been carried on there recently revealed no encouraging features; consequently the question of stopping this section was receiving the directors' attention. He added that the directors were negotiating with the Randfontein Deep with a view to acquiring that company's claim area. It was hoped that the battery reef series on that area would yield a considerable tonnage of moderate grade ore and that, as the reefs would be worked from the outcrop, ore would be won at a comparatively cheap rate. "Randfontein," said the chairman on that occasion, "is struggling against a series of adverse conditions, the chief of which is the bad state of the old shafts, but there are other causes which have already been indicated. We are struggling to convert an old badly laid out mine into an efficient and up-to-date proposition, and, although it is an uphill task, we feel satisfied that we shall succeed if we can only obtain the sympathy and help of the white workers on the mine. We feel that hitherto we have not received that help and support from this source which might reasonably have been expected under the circumstances, but we are still hoping for some improvement in this direction. The bright features in the situation are the continued good development in the bottom of the mine, and the fact that the first portion of the new lay-out will become effective at a comparatively early date."

WEST REEF STRUCK.

It may be recalled here that the west reef of the Randfontein Central was struck at a depth of 4,130 feet in the south vertical shaft; ten sections have been sampled, value 12·1 dwts. over 48 inches, dip 55 degrees. The Randfontein leader was missing in the shaft.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

SPECIAL MACHINERY.
TOOLS. APPLIANCES
and EQUIPMENT
MANUFACTURED TO CUSTOMERS' REQUIREMENTS.

Accuracy and quick delivery guaranteed.

Enfield Machine & Auto Tool Co., Ltd.,
ENFIELD, MIDDLESEX, ENGLAND.

NOW IS THE TIME TO PAINT THOSE BUILDINGS.

Paint them with "PROTEX" Patent Roofing and Structural Iron Paint. The Native Compound at the Witwatersrand G.M. Co., Ltd. was painted in 1915 with "PROTEX," and is in good order to-day. Isn't this good enough?

Price 17/6 per gallon.

SOLE AGENTS:
KELLY, BURNIE & CO.
Box 5260. The "KELCO" People. Phone 4333.
Corner Polly and Albert Streets, Johannesburg.

HOW TO TURN OUR COAL RESOURCES TO THE BEST ADVANTAGE!

Important Lead from England—Experimental Station Established—"Excellent Results" from Tests of South African Coal—Oil and Sulphate of Ammonia Production Recommended.

How to turn the coal resources of South Africa to the best advantage remains one of the most important industrial questions of the day. Light is thrown on the subject by a valuable descriptive account received from England of the new experimental station opened lately by the Midlands Products Co. It may be recalled that this company was registered in 1918 to put into practical working the recommendations of the Committee of Petroleum Technologists. The opening of its experimental station will form an important development in the history of the coal and oil industries, and provide an organisation where coal and other bituminous material in Great Britain or from any other part of the world may be scientifically treated in order to ascertain by what method and in what manner such material can be turned to the best commercial account and where various systems and processes can be tried out. The fact that spirit and oils can be obtained from bituminous material by modern methods of treatment and the importance of such commodities throughout the world appealed at once to the chairman of the Anglo-Persian Oil Company, Ltd., with the result that its subsidiary, the British Petroleum Company, Ltd., acquired a substantial interest in the undertaking. The remainder of the capital was provided by certain of the largest concerns in the country engaged in coal-mining, the generation and distribution of electric power and the production of the various by-products. From this it will be realised that the company has been established for the purpose of solving the great problems concerned in the better utilisation of coal which is produced, the development of unworked deposits, the production of oils and spirit, the generation of power, and the many other questions and problems associated with these industries. In addition to tests of material from the British Isles that have already been made, excellent results have been obtained from samples of material from South Africa, Canada, Nigeria, Australia, America, India, Japan and many other parts of the world. It is pointed out that local conditions must in all cases be taken into consideration in carrying out a test. For instance, in South Africa—where coal is cheap and the price of oil is high and where sulphate of ammonia is in large demand—it would appear that the proper course to adopt would be to take the cheap raw material and treat it for the production of the maximum amount of oil and sulphate of ammonia. But local conditions might suggest an entirely different process—a process which would produce less than the maximum yield of oil, but which would leave a solid residue either for burning under boilers, in the open grate, or for briquetting for domestic or industrial use, or a heavier briquette for transport. There must also be taken into consideration still another method of treatment, whereby the solid residues would be used for the provision of cheap electric power. From this it will be readily understood that in order to obtain the information required as to how any particular material can be turned to the best advantage, it became necessary to realise the different matters which must be taken into consideration so that material could be treated in retorts specially designed and constructed for particular purposes, and so that the one might run in competition with the other. Thus, the station will not only serve to prove to what use or better uses any particular bituminous material can be put, but it will also show what cannot be done with any particular material and thereby obviate such disappointments as have resulted from the installation of the wrong type of plant in New South Wales, Spain, and elsewhere.

Witwatersrand Deep.

The estimate of results for the month of June, 1920, is as follows: Tons milled, 30,850; gold recovered, 7,867·920 ozs.; average number of stamps running, 200; stamps running time, 21·416 days; tube mills, 5; development footage, 360. The working expenditure, including head office charges, for the month is £40,176, or 26s. per ton. The estimated working revenue, based on an estimate of £5 2s. 6d. per fine oz., is £37,845, or 24s. 6d. per ton. The estimated working loss is £2,331, or 1s. 6d. per ton. The estimated working expenditure as above includes bank gold realisation charges amounting to £3,812, calculated at 7s. per oz.

Leeuwpoort Tin.

Operations for the quarter ended 30th June, 1920, were as follow: Stamps, 17 (including 2 Nissen); time run, 82·37 days; tons crushed, 13,924 short tons; concentrates won, 253 long tons; average assay value of concentrates is 62·749 per cent. metallic tin; average price of metallic tin on which the quarter's revenue has been determined is £275 17s. 4d. per ton; estimated profit, £12,582 17s. 6d.; adjustment in respect of previous shipments, nil; profit for quarter, £12,582 17s. 6d. Capital expenditure: The sum of £1,476 10s. 11d. has been expended for machinery, buildings, shaft sinking, etc. During the quarter a sum of £2,784 16s. for development redemption has been included in working costs.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Phones 2596-7.

Telegrams: "DELTA."

GOLD CERTIFICATES AND A CENTRAL RESERVE BANK.

Summary of the Provisions of the Government's Currency and Banking Bill.

THE full text of the Government's Currency and Banking Bill, which was introduced in the House of Assembly on Monday, is published as an addendum to the report of the Select Committee on the embargo on the export of gold. The objects of this measure are to conserve the specie supplies of the Union by providing for the issue of gold certificates, to provide for the establishment of a central reserve bank for the Union and to regulate the issue of bank notes, and the keeping of reserves with a view to securing greater stability in the monetary system of the Union. It proposes to deal with the problem of currency and banking in all its phases, and embodies practically all the recommendations made by the Select Committee. The first chapter of the Bill deals with the subject of gold certificates. The Treasury is authorised to receive deposits of gold coin or gold bullion to the value of not less than ten shillings and to issue therefor gold certificates of such denominational values and in such form as the Minister of Finance may direct. These gold certificates may not be issued for a sum in excess of (a) the mint value of the gold coin presented, after allowing for the remedy allowance prescribed by law for such coin; and (b) £3 17s. 10½d. per ounce standard for the gold bullion presented, subject to such charges as may be prescribed to cover the cost of refining and minting. Subject to the provisions of any proclamation which may be issued under Section 7 of the Act, gold certificates will be redeemed in gold on demand at the Treasury. The certificates will be considered legal tender for payment of any amount, and it is specially laid down that for every purpose for which gold or gold specie is required to be kept by this Act gold certificates shall be regarded as gold or gold specie. Section seven already referred to provides that whenever the market price of gold in the Union exceeds £3 17s. 10½d. per standard ounce, the Government may declare that the redemption of gold certificates is suspended while such excess continues. Whenever this happens the Treasury is empowered to call upon the banks to deposit at the Treasury the whole or any portion of the gold coin held by them and receive in exchange gold certificates. Failure on the part of any bank to comply with this demand will involve a penalty of £500 for every day during which the default continues. The object of all these provisions is to ensure that, while the Treasury gold certificates are convertible into gold, the Government shall be relieved of that obligation so long as gold commands a price in the world's markets which exceeds the standard price. When that point is reached there will be available in the Treasury sufficient gold to redeem the whole of the outstanding notes. The effect of the scheme is to make the Treasury the guardian of the country's gold currency during a time in which it is in danger of disappearing from circulation and from the country. By far the greater portion of the Bill is devoted to laying down the machinery necessary for the establishment of a central reserve bank. Such a bank is to be established at Pretoria under the management of a board of eleven directors, of whom three experienced in banking and finance will be nominated by the commercial banks, three who must be actively engaged in commerce, agriculture, or some other industrial pursuit, will be elected by the shareholders, and three appointed by the Government, while two to be styled the Governor and Deputy-Governor will also be appointed by the Government. It is laid down that the original capital of the bank must not be less than £1,000,000, which is to be subscribed by the commercial banks in proportion to their paid-up capital and reserves. The banks are required to offer fifty per cent. of the stock allotted to them to the general public at par, and in the event of the public subscriptions not being taken up to the full extent the balance will revert to the Treasury. After making provision for bad debts, depreciation, etc., and the payment of a cumulative dividend at the rate of 6 per cent. per annum, the surplus is to be allocated to reserve fund until such fund is equal to twenty-five per cent. of the paid-up capital. Thereafter until the reserve fund is equal to the paid-up capital of the bank, one-half of the surplus will be allocated to reserve fund, one-quarter to the Government, and the remaining quarter to stockholders. When the reserve fund is equal to the capital of the bank, the net profits, after payment of a dividend of 10 per cent. to shareholders, will be paid to the Government. The clauses laying down the powers, duties and business of the bank appear to go considerably beyond what was originally intended. The business of a central reserve bank should be to act as the banker of the banks, but the powers conferred under the proposed Act are so wide that there is every possibility of the central reserve bank competing with the commercial banks.

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:
46 Survey Certificates to date, including three Honours Certificates.
Elsewhere One Survey Pass has been obtained to date.
Last two Managers' Examinations combined we secured 15 passes from 19 entries, a truly remarkable record.
We established a percentage record of passes, January, 1920, Managers' Examination.
We lead with Overseers Passes, 1918 and 1919, combined.
WRITE FOR PARTICULARS AND CLASS TIME TABLE.

National Trading Co.,
54-58, CULLINAN BUILDINGS,
JOHANNESBURG.
Box 2762 Telegrams: "Gloria."

STOCKS OF

RED, HARD MINERS' HATS;
RESIN MINERS' HATS;
CONCENTROL CARBOLINEUM;
MERCURY;
HARDY'S PICKS & HANDLES;
BALLAST FORKS;
C. o. M. STANDARD BEARING METALS;
LAMB & FLAG BLOCK TIN;
COTTON & WOOLLEN WASTE;
NIXEY'S ENGLISH PIPE-JOINT COMPOUND;
&c., &c.

THE DOOM OF THE "DRY" JACKHAMMER.

New Government Regulation—Some of Its Effects—Nine Months to Make the Change—Who Will Bear the Cost?

The "dry" jackhammer is doomed on the mines of the Rand. That is the brief significance of the new addition to the Mines, Works and Machinery Regulations announced this week. The official intimation is conveyed in the following laconic circular issued by the Chamber of Mines this week:—

Transvaal Chamber of Mines,
Johannesburg, 13th July, 1920.

Circular, Managers, No. 51/20.

Dear Sir,—

MINING REGULATION 101 (1) (g).

I enclose for your information copy of a letter received from the Government Mining Engineer, referring to an amendment of Regulation 101 (1) (g), to read as follows:—

> "No person shall in the drilling of holes use or cause or permit to be used any machine drill in which only air is passed into the hole through the hollow jumper of the drill."

You will note from the Government Mining Engineer's letter that this regulation shall come into force after 31st March, 1921.

Yours faithfully,

L. S. RAYMOND, Assistant Secretary.

(COPY.)

Sir,—

REGULATION 101 (1) (g).

I have the honour to state that at the meeting at my office last week, at which representatives of your Chamber, the Mine Managers' Association, the Underground Officials' Association, and the South African Mine Workers' Union attended, it was agreed that the proposed regulation should come into force after the 31st March, 1921, so as to permit of the using up of stocks of the objectionable type of drill before that date.

I shall shortly make a recommendation to the Right Honourable the Minister of Mines and Industries in accordance with the above, and suggest that in the meantime your Chamber might circularise the Witwatersrand mines, warning them that such regulation will probably come into force. This will obviate any unwitting further purchase of the proscribed type of drill.—I have the honour to be, etc.,

(Sgd.) R. N. KOTZE, Government Mining Engineer.

To the Secretary, Transvaal Chamber of Mines,
P.O. Box 809, Johannesburg.

What the effect of this will be on the mines remains to be seen. The dry jackhammer is clearly indicated as the "proscribed machine" and considerable numbers of them are in use to-day on the mines and held in stock by merchants. These will have to be scrapped or converted by the appointed date. Either they will have to be converted to wet machines at some expense (one estimate is £9 per machine) or adapted to the use of solid steel. To obviate "fitchering" with solid steel the rapidity of rotation will in most cases have to be greatly increased. Opinions may differ regarding the best course to pursue, and the matter is doubtless now engaging attention.

SOUTH AMERICA

HEAD OFFICE, MONTREAL, CANADA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE — Buenos Aires.
BRAZIL — Rio de Janeiro, Santos, Sao Paulo.
URUGUAY — Montevideo.
VENEZUELA — Caracas, Ciudad Bolivar, Maracaibo, Puerto Cabello.
COLOMBIA — Barranquilla.
BR. GUIANA — Georgetown, Rose Hall, New Amsterdam.

Also 60 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

555 Branches throughout CANADA & NEWFOUNDLAND

LONDON — Princes St., E.C.
PARIS — 28, Rue du Quatre-Septembre.
NEW YORK — 68, William St.
BARCELONA — Plaza de Cataluna 6.

THE ROYAL BANK OF CANADA

CAPITAL PAID UP & RESERVES - $35,000,000
ASSETS OVER - - - - $500,000,000

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

THE JUNE OUTPUT IN DETAIL.

Increased Production and Profits—Smaller Labour Supply—Modder East Enters List.

The gold produced in the Transvaal during July totalled 715,957 ounces, compared with 699,041 ounces in May, an increase of 16,916 ounces. The totals for the Witwatersrand and outside districts are as follow:

Witwatersrand

	Ozs.
June	699,199
May	681,551
Increase	17,648

Outside Districts.

May	17,490
June	16,758
Decrease	732

Grand Total.

June	715,957
May	699,041
Increase	16,916

The value of the June output, taken at £5 2s. 6d. per fine ounce less realisation charges, is £3,583,395 as against £3,669,965 in the previous month, a decrease of £86,570. The May output was valued at £5 5s. per ounce, less realisation charges. Included in the June returns are 7,559 ozs. declared by the Modderfontein East, which appears in the official list of producing mines for the first time. The 7,559 ozs. represent the result of crushing from April 23 to June 30. The gold produced by the company in June was 5,110 ozs. Amongst the increases shown in the June list are the following: Randfontein Central, 4,696 ozs.; City Deep, 3,861 ozs.; Robinson Deep, 2,025 ozs.; Modder B., 1,834 ozs.; Government Areas, 1,577 ozs.; Langlaagte Estate, 1,224 ozs.

Native Labour

The native labour return for June shows that the number of boys employed on the gold mines at the end of that month was 4,895 less than at the end of May, and 9,619 less than at the end of April. The figures for the past three months are as follow:

	April.	May.	June.
On gold mines	189,446	184,722	179,827
On coal mines	12,951	12,897	13,036
On diamond mines ...	5,057	4,793	4,596
Totals	207,454	202,412	197,459

Witwatersrand.

Company Returns.

	Ozs.	Increase.	Decrease.
Aurora West	2,951	254	—
Brakpan Mines	19,687	59	—
Con. Langlaagte	12,806	73	—
Con. Main Reef	18,755	880	—
Crown Mines	58,676	437	—
City Deep	33,867	3,861	—
Durban Deep	7,372	444	—
East Rand Proprietary ...	35,690	987	—
Ferreira Deep	10,259	—	580
Geduld Proprietary	15,222	—	195
Geldenhuis Deep	13,521	479	—
Government Areas	50,603	1,577	—
Jupiter	5,347	—	301
Knight Central	7,899	323	—
Knights Deep	16,746	—	1,158
Langlaagte Estate	13,668	1,224	—
Luipaardsvlei	5,016	—	63
Meyer and Charlton	9,767	797	—
Modder B.	26,101	1,834	—
Modder Deep	22,147	458	—
Modder East	2,459	—	—
	5,100	7,559	—
New Kleinfontein	13,221	—	120
New Modder	43,335	—	786
New Goch	3,754	132	—
New Heriot	1,667	—	1,314
New Primrose	4,108	—	5
New Unified	2,873	60	—
Nourse Mines	14,060	57	—
Randfontein Central	38,352	4,696	—
Roodepoort United	5,220	—	30
Robinson	9,562	101	—
Robinson Deep	18,867	2,025	—
Rose Deep	15,540	821	—
Simmer Deep	10,246	—	1,059
Simmer and Jack	14,174	—	439
Springs Mines	16,469	—	1,534
Van Ryn Estate	8,669	—	20
Van Ryn Deep	24,803	—	434
Village Deep	15,325	—	44
Village Main Reef	5,342	175	—
West Rand Consolidated...	9,176	—	250
Wit. Deep	7,860	320	—
Witwatersrand	9,932	—	533
Wolhuter	8,621	—	39
Miscellaneous	4,539	1,539	—

Outside Districts.

	Ozs.	Increase.	Decrease.
Sub Nigel	6,432	147	—
Glynn's Lydenburg	1,124	—	63
Transvaal G.M. Estates ...	5,512	—	529
Miscellaneous	3,690	288	—

Group Profits.

	April.	May.	June.
Central Mining	£248,245	£288,324	£323,478
Barnato	159,352	172,965	204,330
Gold Fields	15,810	17,019	17,161
General Mining	17,977	32,055	34,997
Mines Selection	43,393	50,001	42,546
Union Corporation ...	71,132	75,277	78,691
	£555,909	£635,641	£701,203

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.
TRADE MARK

HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg Bulawayo and Salisbury.

OIL SHALES AND THE OIL SHORTAGE.

In a paper on the "International Aspects of Petroleum Industry," by Mr. V. H. Manning, Director of the United States Bureau of Mines, the author points out that the most promising oil districts now known outside of the United States are in Mexico, in the South American countries bordering the Caribbean, in Equador, Peru, Bolivia, Argentine, Northern Africa, Egypt, Persia, Mesopotamia, Palestine, Russia, India, East Indies, and China. There are other localities of smaller promise or about which less is known, and doubtless some of these will develop fields of the first magnitude when explored and prospected. When one reviews these potential oil fields, one is struck with the fact that Latin America, Great Britain, France, and the Netherlands, apparently control the main potential sources of supply, and particularly those that are of the most concern to the United States. Thus, the policies of these countries are of the greatest interest to America. We find England and France adopting policies, already in part incorporated into laws or regulations, that now virtually exclude other than their own nationals from developing the resources within their own realms. He goes on to say that in 1914 when the World War began, the United States was in first place and produced 266,000,000 bbl. of oil, or about 66 per cent. of the toal output of the world. Russia was second, with an approximate production of 67,000,000 bbl., or about 17 per cent. of the world's total. Mexico came third with about 21,000,000 bbl., or a little over 5 per cent. of the world's production. Rumania, the Dutch East Indies, India, Galicia, Japan produced comparatively small amounts of oil, totalling approximately 12 per cent. At the same time the United States consumption has steadily increased, and for the years 1916, 1917, 1918, actually exceeded the production. Mr. Manning goes on to say that the position, therefore, of oil in the United States has resulted in a close inquiry being made into the question of treating the oil-bearing shales which occur in the Cretaceous formation of the Rocky Mountain region. The U.S. Geological Survey estimates that the shales in the States of Colorado, Wyoming and Utah alone contain many times the recoverable oil present before well drilling began.

DICK'S BALATA BELTING.

TRADE MARK
DICK'S ORIGINAL BALATA GUTTA PERCHA & CANVAS BELTING

RIDDELL'S "ADAMANT" STEEL SCREENING.

SOLE AGENTS:
S. P. RUTHVEN & SON
(Established 1892),
3, WINCHESTER HOUSE, JOHANNESBURG.
P.O. Box 3013. Telephone 80. Telegrams: "BELTING."

R. SYMONS

WANTED.
Punching and Shearing Machine. Must be capable of cutting 6in. x 1in. flat bars. Give full particulars, makers name and condition.

FOR SALE.
Second hand Felloe Shaping Machine. Maker, Sagar & Co., Halifax. 6in. deep knives suitable for all classes of irregular and circular moulding, £40.

Also second hand
MASS 2 ton
— AND —
ALBION 1 ton
MOTOR LORRIES
FOR SALE.

FOR SALE.
One second hand band saw. Ibbotson Bros. Sheffield make. Will cut 16ins. deep, in good order with saws complete, £200.

FOR SALE.
Rounding, Chamfering and Cornering Machine, for shafts, poles, felloes and general wagon and carriage parts, £40

BUFFALO WAGON & CARRIAGE WORKS,
KING WILLIAM'S TOWN.
P.O. Box 82. Telegrams: "BUFFALO."

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Southern Van Ryn.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—There are surely several points in the latest report issued by the directors of the above company which require elucidation. For instance, "largest reef tonnages" are spoken of, based on a dip of 60 degrees. How far does this dip of 60 degrees extend in the direction of the dip and strike of the reef? If I remember rightly, the shape of the property resembles a hammer with a large head, with its handle pointing, roughly, south-east. It is in the narrow "handle" portion of the property that the 60 degrees dip occurs and not in the "head" and larger portion. It therefore seems misleading to speak of "largest reef tonnages" and 1,900 claims when the 60 degrees dip on which the tonnage depends extends over so small a portion of the whole property. Also, such words and figures are not of much use should the percentage of pay ground be low. On the Nigel Reef, at least, everything points to a very low figure in this respect, and if pay ground is being found on the Kimberley (alias Van Ryn) Reef it is only one place out of many proved unpayable. How does the company propose making a profit in six months time with 10,000 tons of pay ore *almost* completely blocked out and two levels to work on? I cannot find any trace of gold having been produced from either the Modder West or the Nigel Van Ryn let alone any profit having been made. Can a reef be said to support a mine until that mine is producing gold and making profits?—Yours, etc.,

WILLIAM ALLEN.

P.O. Box 8, Germiston,
30th June, 1920.

[We have submitted this letter to Mr. Bleloch, who says: "Your correspondent is quite wrong. In the narrow part of the Southern Van Ryn property no shafts have been sunk to the reefs. It is in the northern area, where the Van Ryn Reef—not the Kimberley, as your correspondent insinuates—has been opened by the No. 1 incline shaft and by several other prospecting shafts. The angle of dip is 60 degrees, and Boreholes 3, 4, 5, 7, 8 and 10, which all cut the reef with encouraging values, prove that the steep dip continues down to at least 1,500 feet. The statement of reef tonnages is made by Mr. Tutt, the consulting engineer; also by myself with full knowledge of the facts, which your correspondent evidently does not possess. On the southern end of the property, while the angle of dip as proved by shaft and borehole on the Nigel Reef in the newly-acquired Nigel Van Ryn Mine is not quite so steep as in the northern and larger area, the available data shows from 40 to 60 degrees. It is quite sufficiently steep to warrant the statement as to reef tonnages made. That statement, we submit, is demonstrably true, and we will be glad to show your correspondent the facts on which it is based. The Van Ryn Mine, for instance, has mined an average of 70,000 tons per claim on the Van Ryn series only, and we have the Nigel and the Modder West reefs available from their sub-outcrops in addition. The developed pay tonnage at present is calculated at 20,000 tons Nigel Reef, value 7½ dwts., and 10,000 tons Van Ryn, value 6 dwts. Both Modder West and Nigel Van Ryn mines have and are actually producing gold. The screen assays of the Nigel Van Ryn average 7½ dwts."—Ed., S.A.M. & E. J.]

Coal By-Products.

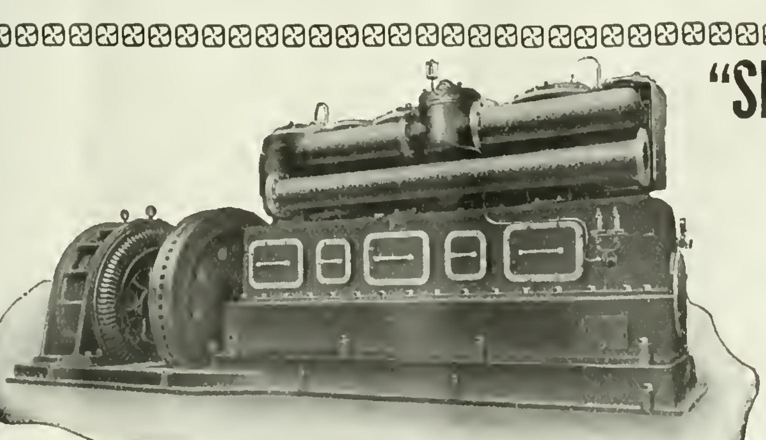
To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—An important public function will take place at Kirkby-in-Ashfield, near Nottingham, early in September, when the experimental station which is being erected in consequence of the recommendations of the War-time "Committee on the Production of Oil from Indigenous Sources" will be declared open. Leading representatives of the most important scientific and technical bodies in this country will be present, and I will forward you, in due course, further particulars of the ceremony. The final report of the Committee recommended the establishment of an experimental station, and in order to put this recommendation into practical operation the Midland Coal Products Company was formed, the necessary money (£100,000) being provided privately. Full details in connection with the organisation are contained in the advance copy of a pamphlet which I enclose herewith. This statement has been prepared for distribution on the occasion of the formal opening of the station. It is as a matter of public interest and world-wide importance that I wish to call your attention to this direct and practical result of work undertaken in war-time and now brought to a successful issue by the foresight and enterprise of some of the leading men in the coal-mining, oil and power industries. If there is any further information on the subject which I can give you I shall be pleased to do so.—Yours, etc.,

J. ARTHUR GREENE,
General Manager.

1 Charing Cross, London, S.W. 1,
22nd June, 1920.

[The paragraph is dealt with elsewhere in this issue.—Ed]



"SENTINEL" Air Compressors

are characterised by

High Efficiency, Accessibility, Simplicity and Reliability.

These can be delivered from stock.

SOLE AGENTS:

The Griffin Engineering Co. Ltd.

94 MAIN STREET, JOHANNESBURG.

"SHEELEY" TUBE MILL LINERS.

THE EFFICIENT LINER.

Sole Selling Agents:

RINTOUL & DAVIS,
23, Cullinan Buildings,
JOHANNESBURG.

MINING QUESTIONS IN THE UNION PARLIAMENT.

G. S. W. Diamonds and Far East Rand Leases—Some Ill-Informed Critics.

In the Assembly on Tuesday, Mr. Munnik generally condemned the Government's mining policy, and averred that the Minister of Mines, who was like plasticine in the hands of the powerful mining groups, had woefully neglected his duty in letting the Far East Rand areas go in the way he had done. Regarding the closing of the Princess Estates, he declared that that had been due to bad management and not to the fact that the mine was low-grade. He alleged that the officials of the Department of Mines were misleading the Minister, and that the low-grade mines would never have become low-grade if the Far East Rand areas had not occurred. He agreed that Sir Robert Kotzé was one of the ablest engineers in South Africa, but he had this taint, that he had never forgotten that he had come from the capitalistic companies, and that it was from them that he had got his first job. (Cries of "Shame.").

UNEMPLOYMENT ON THE RAND.

In the Assembly Mr. Feetham inquired what steps were contemplated by the Minister of Mines to deal with unemployment on the Rand. He argued in favour of the utilisation of mining ground for settlement purposes. Mr. Papenfus made a plea for the utilisation of mining ground for the settlement of ex-miners and others. Mr. Drew inquired what was going to be done to cope with the growing unemployment on the Rand. It was estimated that the number of unemployed on the Rand alone would be in the neighbourhood of 5,000, and he feared that, unless steps were taken to deal with the matter, there would be very serious results. He also called attention to the extremely low wages paid in Capetown, on which a large number of people were to-day starving.

In the Assembly on Tuesday, Col. Creswell asked for a full statement regarding the diamond concessions in German West. The whole of the area held by the Deutsche Koloniale Gesellschaft, he said, was to-day closed for prospecting. The position in those areas was that they were essentially poor men's workings. He wished to know what was the policy of the Government—whether these areas were to be kept for large corporations or whether they were to be thrown open for the public. These diggings could be prospected with very little cost. Mr. Munnik wanted a thorough inquiry to be made into the question of the concessions. Sir David Harris said the producers in the South-West were no worse off to-day than before the War. Col. Creswell was anxious that more diamonds should be produced in the South-West, but he should not forget that the world would only take a certain quantity of diamonds every year, and the more diamonds that were produced and sold from the South-West the less would have to come from the Union. Every additional £1,000 worth of diamonds produced in the South-West must have the effect of throwing one man out of work in the Union. Amid loud cries of dissent from the Labour benches, Sir David emphatically denied that the same groups of people controlled the Far East areas as the diamond mines. (This was an assertion made by Mr. Munnik, who had spoken of pernicious influence.) What was the pernicious influence of a man like Mr. Joel, who employed large numbers of men in South Africa and looked well after them? Mr. Munnik was a past-master in the making of innuendoes, and it was one of the most cowardly systems of attack. After the War, Sir David said, the Government had called for tenders for the purchase of the Seitz diamonds, and at a time when there was very little demand for diamonds, and had accepted the highest tender, and had later taken a share in the proceeds. The Diamond Syndicate had been the purchaser.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

MINERAL PRODUCTION OF THE BRITISH EMPIRE.

Interesting Address by Mr. F. Merricks—How South Africa Stands.

In his inaugural address delivered at the annual meeting of the Institution of Mining and Metallurgy held in London the other day, Mr. F. Merricks, the new President of the Institution, dealt with the Mineral Production of the British Empire. His lengthy and admirable discourse on this subject was supported by a wealth of statistical matter relative to the output of minerals from the various Dominions. Mr. Merrick's address is too lengthy to admit of reproduction in our columns, and we shall therefore content ourselves with extracts from the particular portion of his remarks which deal with the mineral outputs of South Africa and Rhodesia.

Gold.—Australia occupied the premier position in the Empire as a producer of gold until 1904, when South Africa forged in front with an output valued at just over £16,000,000. Since then the Australian output of gold has gradually dwindled, while that of South Africa, although in recent years affected adversely by shortage of labour and the limitation of supplies caused by the War, has leapt ahead, the value of her gold production in 1916 being nearly £39,500,000. The figures for later years show an appreciable falling off, but this may prove to be only a passing phase in the life of South Africa's gold industry. New Zealand maintained an average gold production of nearly £2,000,000 for several years prior to 1912, but the output has steadily declined since then. Canada in recent years has made a showing reminiscent of her brightest days, and the set back in 1917 must be regarded as merely a temporary lapse. Rhodesia, too, has made good showing, although of course not comparable with that of her neighbour, the Transvaal. The decline in the output of gold of each of the Australian States is particularly noticeable, and the Commonwealth Government might very well take into serious consideration the desirability of aiding in the discovery and development of gold deposits in hitherto neglected areas. The high premium on the price of gold to-day should certainly be regarded as an inducement to that Government to come to the assistance of an industry from which so considerable a proportion of its revenues has been made in the past. In connection with the output of gold generally, the following figures may be of interest. The total value of gold produced in the Empire from 1851 to 1891, amounted to £363,000,000 approximately. Of this, Victoria was credited with £229,788,000—the production of the whole of Australia for the period being £298,688,000—New Zealand contributing £47,433,000, Canada £13,916,000, India £1,552,000, and the Gold Coast £815,000; the output of British Guiana being estimated at £518,000. The continued fall in the world's production of gold during the past four years, in spite of the increased demand for the metal, is a matter of serious importance. The value of the 1914 output amounted to slightly over £90,000,000. In 1915 it increased to £96,525,000. Since then, however, there has been a marked yearly falling off. In 1916, the output decreased to £93,841,000, and in 1917 to £86,980,000, while in 1918 it was only £78,221,700, that is to say nearly 20 per cent. less than in 1915. The output for 1919 is expected to show a still further decline. It is highly satisfactory to note that the gold production of the British Empire represents about 64 per cent. of the World's total. The production of Africa—mainly, of course, from the Transvaal represents about 76 per cent., and that of Australasia about 14 per cent. of the Empire's production. The gold output of the United States is roughly 20 per cent. of the world's total. It is not possible to give close figures relative to gold production in Russia, Mexico and other countries during the War years, but it has been more or less authoritatively estimated that 16 per cent. of the total output was derived from these various sources. The combined output of South Africa, Rhodesia and British West Africa, fell from £44,147,000 in 1915 to £39,754,490 in 1918 the Australasian output from £9,964,000 to £6,526,800, and that of the United States from £20,300,000 to £14,064,410. The only country which appears to have increased its production of gold in quite recent years is Mexico.

Copper.—The output of copper in the Transvaal fell from 9,606 short tons (51 per cent. Cu) in 1917 to 5,206 short tons (53 per cent. Cu) in 1918. This was the product of the Messina Mine, where the cost of production is said to be over £100 per ton. In the Cape Colony the fall was even greater—from 10,525 short tons (48 per cent. Cu) in 1917 to 1,669 tons (48 per cent. Cu) in 1918. This was due to difficulties with supplies, absence of shipping, and the prohibition of the export of matte to England. The last mentioned obstacle left the Cape Copper Company with a large stock of matte on hand, but the Namaqua Company was able to dispose of its output to Japan.

Tin.—About one-half of the world's supplies of tin are mined in the British Empire, the chief producing country since 1891 being the Federated Malay States. The other tin producing centres of the Empire are Cornwall, Nigeria, Australia and South Africa.

Chromite.—Just before the War, Rhodesia and New Caledonia were the world's chief sources of supply of chrome ore, with a production of 63,000 tons each in 1913. In the same year India produced over 5,500 tons of high grade chromite from Baluchistan. The only other foreign producer of any importance was Greece. The demand for chromite arising out of the War, chiefly for the manufacture of ferro-chrome for use as a steel hardener, has resulted in a very large increase of output in India (to over 57,000 tons in 1918), and has given a new stimulus to production in Canada and the United States, in both of which countries the chromite industry was moribund in 1913. In 1917, the output of chromite in Canada was 37,000 short tons, and in the United States 44,000 short tons. Rhodesia's output of chromite increased substantially in 1916 and 1917, but fell off by 50 per cent. in 1918 as compared with 1913, owing to the shortage of shipping.

Bismuth and Antimony.—Small quantities of bismuth and antimony ores were won in Australia, principally in New South Wales and Queensland, prior to 1891. New Zealand also produced some antimony ore. Neither in Australia nor New Zealand has the production of either antimony or bismuth ores ever been of any considerable importance, although fairly regular outputs are still being made in several of the Australian States. Canada and South Africa however, as a result of discoveries made during the War, are likely to become considerable producers of antimony, and doubtless a great increase of such production could be made within the Empire if the demand arose. The graphite output of Madagascar rose from 7,000 tons in 1913 to nearly 30,000 tons in 1917. This rapid expansion has been rendered possible by the facts that the mineral is obtained from the surface workings in soft rock, that it is readily separated from the associated clay by sluicing, and that labour is cheap.

Asbestos.—The world's production of asbestos in 1918 appears to have been about 164,000 tons, of which practically all but about 10,000 tons, if Russia's output may be estimated at that figure, was produced in the British Empire, mainly in Canada, smaller outputs being made in Rhodesia and the Union of South Africa.

Chrysotile asbestos is mined on a considerable scale in the Urals, the fibre being of good commercial quality, while extensive deposits of such asbestos have been opened up in Rhodesa within the past ten years. The blue asbestos mined in the Transvaal is crocidolite (silicate of iron) as distinct from chrysotile fibre (silicate of magnesia). For certain chemical purposes this variety possesses advantages, but its harsh, abrasive quality renders it unsaleable for the manufacture of packings; and, speaking generally, it is vastly inferior to the chrysotile variety for economic uses. Apart from a small quantity of chrysotile mined in Arizona, the United States produce practically no asbestos; and, while chrysotile is known to exist in various parts of the world, notably in Newfoundland, Manchuria, Tasmania, Western Australia, and, to a less extent, in the Pyrenees, Chian, Brazil, and elsewhere, actual production is limited to Canada and Rhodesia.

Mica.—During the War the mica-mining industry of Brazil developed rapidly, and its output may seriously affect the position of Indian mica in American markets in the near future. At the outset of the War mica mining was making rapid headway at Morogore, in German East Africa, the mineral produced being as valuable for electrical insulation purposes as ordinary Indian muscovite or Canadian "amber," although it is considerably inferior to the best Indian "ruby" mica. The exports of Morogore mica in 1912 amounted to 154 tons.

Mr. Henri Stephan, a well-known former pioneer mine manager of the Rand, died this week in Johannesburg.

Rhodesia's April Mineral Output.

The report of the Executive Committee of the Rhodesia Chamber of Mines for the month of April states:—The number of natives employed in March, 1920, shows an increase of 5,573 as compared with the corresponding month in 1919. The Chamber very much regrets to record the death of Major Neil MacGlashan, which took place at Somerset Strand, on the 12th May. The late Major had been Hon. Vice-President of the Chamber, from 1901 to 1904, and Hon. Member since 1904. The condolence of members of the Chamber has been conveyed to the relatives. In reply to a request from the Chamber whether the terms offered generally to small producers for gold purchased could be improved, the local banks stated that they were arranging for the premium realised each quarter to be cabled out with a view to earlier distribution in future. If this can be arranged, producers will be able to receive their premiums some weeks earlier than hitherto. The total value of the gold and other mineral yield from Southern Rhodesia during the month of April, 1920, amounted to £354,514 as compared with £269,469 for the previous month of March.

Summary of Production, April, 1920: Gold, 46,999·87 ozs., value £208,934; silver, 13,038·09 ozs., value £5,992; coal (raised 47,106 tons), value £14,793 (sales); coal used for coke and bricks (estimated value), £5,106; copper (blister), 271·33 tons, value £37,373; chrome iron, 8,321·85 tons, value £32,461; asbestos, 1,251·60 tons, value £48,680; arsenic, 27·22 tons, value £1,089; diamonds, 18·75 carats, value £86; total value, £354,514. N.B.—The value of the above gold output includes £4,505 premiums.

THE UTILIZATION OF WASTE COAL IN SOUTH AFRICA.

Referring to the article in our issue of May 28, dealing with the problem of waste coal utilization as it presents itself in South Africa, Mr. L. C. Harvey writes deprecating the rather pessimistic views on the heating values of South African fuels which characterised reports upon the subject in the recent special issue of the *South African Mining and Engineering Journal.* He regards this alleged disqualification as more apparent than real when the prospect of burning South African coal in pulverised form is considered, and asserts that there is no reason why the daily production of "waste" coal (if not the accumulations of past working) cannot be used if pulverised, and why, thus treated, the so-called low-heat-value coals of South Africa, now ruled out for locomotive firing, should not be rendered serviceable. Mr. Harvey goes on to say that when reading the mass of data collected on the subject, one is struck by the really consistent average heat values of the coal in South Africa, and especially by the normal small quantities of moisture contained in the coal in most instances. He regards the future of all coal-bearing countries as destined to be to a great extent governed by the possibility of using local fuel in place of imported coal at very high prices. That it is quite possible to eliminate a large quantity, if not the whole, of imported coal is now being realised in various parts. Brazil has already supplanted imported railway coal to some extent by fuel which hitherto has been considered useless, and continuous extensions in this direction are to be made. The coal used in Brazil is of lower quality than the South African fuels, as the following comparative analyses of Brazilian and South African coals clearly show:

	Brazilian Coal. as used "dry" in pulverised form for locomotive fuel. Per cent.	Per cent.	South African Coal. Undried. Durban. Per cent.	Kr'nst'd. Per cent.	Dundee. Per cent.
Moisture	7·90	1·73	1·6	8·29	0·84
Vol. carbon	28·04	9·50	27 10	31·27	25·3
Fixed carbon ...	34·73	61·50	60·05	45·32	68·94
Ash	29·33	28·27	11·25	15·12	5·76
Sulphur	3·16	9·1	1·51	1·43	1·53
B.T.U. per lb. ...	8,820	10,177	12,950	11,020	14,722
Evap. power ...	9·2	10·4	13·4	11·4	15·23

In connection with these analyses of coals there are one or two points of outstanding interest. The Brazilian coal analysis represents the fuel in pulverised form after treatment in a rotary drier. The fuel is of friable nature, and the ash of such form that when subjected to heat it flows round the lumps of fuel on a hand-fired grate rendering it impossible to burn the coal. Kroonstad coal contains about the highest degree of moisture recorded, 8·29 per cent., whereas most South African coal contains but 1 or 2 per cent. of water, and for which drying plant would not be required. Many references are made in the pages of the *South African Mining and Engineering Journal* to the friability of the fuel with consequent heavy loss in smalls and dust—a loss eliminated when coal is pulverised. In Italy a locomotive coaling plant is to be installed for dealing with the native lignite fuel; in Holland a similar plant to handle Limburg coal, in Sweden locomotives have been for some years run on pulverised peat and pulverised bituminous coal; in America colliery boilers are fired with straight pulverised anthracite tailings from the washery plants. There is naturally the desire in Continental countries to replace costly imported coal by local fuels, peat, lignite, brown coals, sub-bituminous coal, and other grades of fuel which are available. In anthracite districts the present tendency is to make use of the duff and washery waste as reliable fuel for boiler firing. There appears, therefore, every opportunity to burn South African fuel, which is on the whole of far superior quality to the fuel now being successfully applied in other less fortunate countries. Not only would great economy in consumption (20-25 per cent.) and saving in money be achieved thereby, but conditions of firing locomotives, land boilers, marine coasting steamers, industrial plants, would be brought up to the level of oil-firing at but a fraction of the cost of the latter. Referring to the suggestion that coal in the raw state should not be burnt at all, Mr. Harvey expresses the view that, while the extraction of distillates and the recovery of by-products from coal are naturally matters of an engrossing nature, the evidence available at the moment does not hold out hope of profitable processes excepting under propitious conditions. The one point outstanding which confines workable plants within limits is size of installation. Up to a given capacity in coal treated per hour carbonisation processes do not pay, assuming normal market values for products. Whereas with workable plants as regards capacity, the gas produced (which is one of the assets of such a scheme) becomes so voluminous that it cannot be dealt with. Conditions existing in any one country or locality must therefore be such that a carbonisation process can be developed with advantage. This requirement does not enter into the question to anything like the same extent for pulverised coal applications, but there is a total loss of distillates and fertiliser materials. The application of pulverised fuel will, however, always show a saving of 20-50 per cent. over straight coal as hand-fired, and, moreover, any grade of coal can be used so that isolated installations of small capacity—say 30 or 40 tons per day—will show the same economy in the furnace as plants of 1,000 tons and upwards per day. This essential factor should be borne in mind when advancing schemes for sparsely-populated countries such as South Africa, where self-contained pulverised coal plants can be operated with every confidence in the results to be obtained.

Swaziland Tin.

The following are the results of the operations of this company for the month of June, 1920: Concentrate recovered, 28·25 tons 70·2 per cent. concentrate; estimated working profit, £844 (taking tin at £240 per ton).

PHONE 4673 BOX 3162

OSBORN'S
"HAND AND HEART" DRILL STEEL
Solid and Hollow.
LARGE STOCKS CARRIED LOCALLY.
SAMUEL OSBORN' (South Africa) Ltd.
SHEFFIELD & JOHANNESBURG.

HAVE BASE METAL PRICES TOUCHED BOTTOM?

APART from tin, which fell £2 10s. further to the new low level for this year of £275 10s., the four chief articles dealt in on the Metal Exchange showed a steadier tone in mail week. However, the recent break in the prices of tin, copper, lead and zinc—and particularly the first two—creates a serious problem for producers and the shareholders in the various mining companies concerned. In the circumstances a reassuring opinion from such an eminent authority as Sir Cecil Budd, K.B.E., of Messrs. Vivian Younger and Bond, is of importance. As chairman of the Metal Exchange, Sir Cecil was naturally one of the first trade representatives to be called into consultation during the War period by the Ministry of Munitions, and his knighthood was the reward of his valuable services in this connection. Sir Cecil was one of the founders and is a director of the important British Metal Corporation which was formed about the time of the Armistice. To his supporters in this connection he has just issued the following important circular:

The following comparison of metal prices at the end of February and on the 19th May is given to show clearly the enormous depreciation of values, unprecedented in so short a space of time, that has taken place:—

	1920.	
	End February.	19th May.
Copper	£121 0 0	£87 10 0
Tin	418 0 0	283 0 0
Spelter	61 0 0	44 15 0
Lead	51 0 0	37 5 0

Such movements cannot occur without causing serious loss in the trades and industries using and dealing in these metals.

If they were confined to metals, the reasons for them might be of little general importance, but similar and even worse demoralisation dominates practically every market in the country, and the root causes are not far to seek and can be stated quite briefly as follows:—

1. Over-speculation.
2. The mere discussion of a levy on capital increment since 1914, however gained, has produced a widespread feeling of alarm that, if it gets beyond discussion, the financial fabric of this country will stagger.
3. Acting on the instigation of the Chancellor of the Exchequer, the banks all over the country are stated to have withdrawn certain facilities to their customers, and apprehension, probably unjustified, has been occasioned.

Taking the above in their order, we offer the following comments:

(1) The speculation revealed by the tightening of money and the reversal downwards of the curve of general prices was far greater than had been suspected and was evidently solidly for the rise. The quantities of metals now left in speculators' hands must by now be very largely reduced and the position rendered sounder.

(2) There can be no manner of doubt as to the genuine alarm felt by the willingness of the Chancellor to consider a levy on capital increment. Everyone would like to get at the man whose sole contribution to the War was the gathering of large profits, but unfortunately the innocent will have to suffer with the guilty, and, although the policy may be practicable, the general belief is that it is only so if we are prepared to go through a crisis which will shake the country's financial stability of its foundations. An early decision by Parliament is greatly to be desired.

(3) We believe the action of the banks has been exaggerated, and that they have been and still are willing up to the limit of their resources to provide industry and trade with their accustomed facilities. What they are not willing or able to do is to provide advances for speculation or new adventures, and this line should appeal to the commercial community. Deflation of currency and credit is a necessary step to normality and is a delicate operation. It is to be hoped it will be possible to carry it out gradually without affecting production, which is necessary on the largest possible scale.

As regards the four metals quoted, it may be confidently stated that the prices to which they have now sunk are below the average cost of production of the world's needs, and the outputs will certainly be affected should they endure for any length of time. This would be unfortunate, as the best opinion appears to be that there is still a large potential demand awaiting satisfaction, and this will be apparent as soon as the wreckage of speculation is cleared and the other causes of anxiety are removed.

There is promise of a great future for South African "natalite." Our London correspondent is informed on good authority that after a series of trials in motor boats the British Admiralty has just made a confidential report on the far-reaching possibility of the use of this motor fuel in naval vessels.

The Phthisis Board of Johannesburg has purchased valuable farm properties on the Mooi River at Reisenderbult near Potchefstroom, formerly belonging to Mr. W. P. Taylor, and it is understood that a scheme is now in preparation for the settlement on the land there of a number of ex-miners. There is a large river frontage, and the spot is within easy distance of Johannesburg by rail.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%.

Overseers.—23 Certificates out of a total of 35 in South Africa in 1920. Our passes during a recent 6 months (1919/20) were 95%.

Surveyors—Our new class obtained the only Certificate in South Africa, March, 1920, Examination. Over 60 successful candidates have received sectional tuition from us.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

P.O. Box 3807.

ROCKWOOD PRESSED STEEL UNIONS

H. ALERS HANKEY - - - Sole Agent.

CLIMAX DRILLS

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, LTD.
4, Broad Street Place, LONDON, E.C.
or Carn Brea, CORNWALL.

Telephones –
London Wall 2477
London Wall 7144.

Local Address: P.O. Box 2303.——JOHANNESBURG.——'Phone 2190.

Agents: S. SYKES & CO., Ltd.

THE WEEK IN THE SHAREMARKET.

Quiet but Firm—Frank Smiths and Springs Provide Features.

The market has been quiet but firm, and whilst some stocks have lost fractionally, others, notably Springs Mines and Frank Smiths, are substantially better. On Wednesday afternoon quotations were marked down, no doubt on account of fears as to the upshot of the Spa Conference, but on Thursday morning prices were very firm. Last month's profit earnings appear to have been favourably received on the London market, and the general belief is that good dividend paying stocks have receded as far as they are likely to go. Springs Mines shares, which were marked down to as low as 28s. 3d. last week, have made a substantial recovery up to 36s. 6d., and Frank Smiths on steady buying coupled with favourable news from the property have advanced to 16s. 3d. Modder Deeps are still on the weakish side at 41s. 6d., but Modder B's are better at 117s. and New Modders are very steady at 66s. Modder Easts have seen fair business around 21s. 3d. Transvaal Silver and Base Metals are stronger both in respect of shares and options. It is anticipated that an important statement concerning this company will be made in the near future.

	Fri., 9th.	Sat., 10th.	Mon., 12th.	Tues., 13th.	Wed., 14th.	Thurs., 15th.
Anglo-Amer. Corp.	30 0	30 0	31 9*	33 0	33 0*	32 0*
Bantjes Cons.	2 3*	2 6	2 6*	2 6*	2 6*	2 6*
Brakpan Mines	—	—	—	52 6†	—	—
Breyten Collieries	8 0*	—	8 0	8 0*	—	—
Brick and Potteries	—	—	—	4 0*	—	4 0*
British S.A.	15 0*	15 0*	—	—	15 0	15 0*
Bushveld Tins	—	—	—	1 6†	1 4†	—
Cassel Coals	35 0†	—	—		—	—
Cinderella Cons.	—	4 6†	4 6†	4 6†	4 6†	4 6†
City Deeps	42 6*	43 6*	44 6*	45 0*	—	47 0†
City and Subs.	5 6*	—	5 6*	5 9*	—	5 6*
Clydesdale Colls.	—	—	—		23 6*	—
Con. Main Reefs	11 0*	12 0	12 6	12 3	12 3†	12 3
Con. Mines Selection	—	—	—	25 0†	—	—
Coronation Freeholds.	1 0*	1 0	1 1*	1 1	1 1*	1 0*
Crown Diamonds	6 10*	7 0	7 0	7 0*	7 0*	7 0
Crown Mines	41 0*	41 6*	—	42 6*	—	—
Daggafontein Mines	9 3	9 0	8 6*	8 9*	9 3*	10 0
East Rand Coals	—	2 3	2 3*	—	—	—
East Rand Deeps	0 7*	—	—	—	—	—
East Rand Props.	6 6*	6 3*	6 9	6 7*	6 8*	6 7*
East Rand Debs.	£71†	£71†	£71†	£70b	—	—
Eastern Golds	1 0*	1 0*	—	—		—
Frank Smith Dmds.	15 0	14 10½	14 9	15 9	16 0	15 7½
Geduld Props.	35 6*	36 3*	—	37 0*	37 6*	37 0*
Ginsbergs	—	—	—	1 6*	—	2 0*
Glencairns	—	—	—	1 6*	—	1 6*
Glencoe Collieries	—	—	—	—	6 3*	—
Glynn's Lydenburgs.	—	10 0*	—	10 6*	—	—
Govt. Areas	80 6	81 0	83 0	84 0*	84 0*	83 0
Hume Pipes	22 6*	22 6*	22 6*	22 6*	22 6*	22 0*
Jhb. Bd. of Ex.	37 6*	37 6*	38 0*	38 0*	38 0*	38 0*
Jupiters	2 0*	2 0*	2 0*	—	—	2 0*
Klerksdorp Props	—	2 0*	2 0*	2 0*	—	2 0*
Knights Centrals	—	3 6	3 6*	3 7*	3 7½	3 6*
Knights Deeps	—	4 6*	4 6*	4 6*	4 6*	4 8*
Lace Props.	8 9*	8 9*	8 9*	9 3*	8 9*	9 0
Leeuwpoort Tins	17 9*	18 0	17 9*	18 3*	18 0*	18 9
Lydenburg Farms	7 6†	—	—	7 6*	—	—
Meyer and Charltons	—	—	80 0*	80 0*	—	—
Middelvlei Est.	1 3*	1 3*	1 6†	1 3	1 3*	—
Modder B.'s	115 0*	116 3b	117 6†	117 0	115 0a	115 3*
Modder Deeps	41 0	42 0	42 6*	43 0	42 6	41 6
Modder Easts	21 0	21 9	22 0	22 1½	22 0	21 3
Do. Options	£107½*	£111	£112	£112½	£111*	£109½
Do. Opts. (4 yrs.)	6 0	6 2	6 0*	6 3	6 1*	5 10*
Con. Diamonds	30 0*	30 6*	31 6*	31 6*	—	
Modder Wests	13 6*	13 6*	13 6*	13 9*	14 0	13 9*
Natal Navig. Colls.	—	23 0*	—	—	—	—
National Banks	260 0a	—	—	—	260 0	—
New Boksburgs	1 6*	1 6*	1 6*	—	—	—
New Eland Dmds.	—	62 6†	65 0†	65 0†	65 0†	—
New Geduld Deeps	1 7*	1 7*	1 7*	1 7*	1 7*	—
New Heriots	5 3*	—		—	—	—
New Kleinfonteins	6 0*	6 3*	6 3*	6 7*	6 3*	6 3*
New Modders	65 0*	65 3	66 3	66 3	66 9	65 0
New States Areas	26 9*	26 0*	—	27 0*	27 0*	26 6*
Nourse Mines	7 6*	8 0	7 6*	8 0*	8 3*	8 6
Pretoria Cements	106 6*	106 0*	106 0*	107 0*	108 0†	107 0
Princess Estates	0 6*	0 6*	0 7	0 6*	0 6	0 7†
Rand Nucleus	1 2*	1 2*	—	1 3	1 3*	—
Randfontein Deeps	5 3	6 6	5 9	6 3	5 6*	6 6*
Randfontein Est.	16 0*	16 0	16 0*	16 0*	16 6*	16 6*
Roberts Victors.	12 6*	12 0*	13 6*	13 0*	13 0*	—
Rooibergs	6 0*	6 6*	6 6*	7 0	7 3	8 0*
Roodepoort Uniteds.	—	—	1 0†	—	—	
Rouxville Dmds.	22 3*	22 9*	22 6*	21 0*	20 6*	21 0*
Ryan Nigels	—	3 0*	—	—	—	—
Simmer Deeps	0 6†	—	0 6†	0 6†	0 6†	
S.A. Alkali	21 6	22 0	22 6*	22 6*	24 0	24 0
S.A. Breweries.	32 6†	—	28 6	28 6*	30 0†	—
S.A. Lands	3 11*	3 11*	3 11*	3 11*	4 0	4 0
Southern Van Ryns	7 3*	7 6	8 0	8 6	8 9	8 3*
Springs Mines	32 6	32 3	34 3	34 9	35 3	36 6
Sub-Nigels	11 0*	11 0*	11 3	11 6	11 6*	11 3*
Trans. G.M. Est.	9 9*	9 6*	10 0*	9 6*	11 0*	10 0*
Transvaal Silver	40 0*	40 0	45 0†	38 9*	41 0	41 0a
Do. Options	20 0	20 0	19 0*	20 0*	20 0	20 0
Union 5 per cent.	£98½	£98½	98*	£97½	£97¼	£97½
Van Ryn Deeps	74 0	74 0*	74 0*	76 0*	78 0*	77 0*
West Springs	13 6	13 3	13 9	14 4½	14 6	15 3
Do. Options	1 9	1 6	1 6*	2 3	1 9*	1 9
West Rand Cons.	3 6	3 6*	3 6*	3 6*	3 6*	—
Western Rand Est.	3 0	3 3*	3 3*	3 3*	—	3 3*
Witbank Collieries	—	—	—	43 9*	43 6†	
Wit. Deeps	6 0*	—	—	—	—	—
Wolhuters	2 6*	3 0	3 1*	3 6†	3 3	3 0*
Zaaiplaats Tins	6 10	7 0	7 0	7 1	7 0*	7 3

*Buyers. †Sellers. aOdd lots. bEx London.

Southern Van Ryn.

It is officially announced that the date at which applications to take up shares in this company has been extended to July 31st for applicants resident in South Africa and to August 15th for those resident overseas.

Mr. Thomas Callen, City Engineer of Kimberley, has just retired on pension. He held his position for forty years—a record, it is stated, probably unique in South Africa—and during his service he carried out many important works for the health and comfort of the community.

Latest Company Registrations.

LIST OF COMPANIES.

Nunnerley Ludlam and Co., Ltd., 39, President Street, Johannesburg; capital, £30,000.

Smellie Freeman and Co., Ltd., 33, Standard Bank Chambers, Commissioner Street, Johannesburg; capital, £6,000.

Eastern Investment Co., Ltd., Provident Buildings, President Street, Johannesburg; capital, £5,000.

The Universal Printing and Publishing Co., Ltd., 148, Commissioner Street, Johannesburg; capital, £1,000.

M. J. Adam and Co., Ltd., 21 and 22, Exploration Buildings, Fox Street, Johannesburg; capital, £5,000.

Miller Barnett, Ltd., corner of Burger and Kerk Streets, Standerton; capital, £9,000.

The Standard Cigarette Co., Ltd., Pinns Buildings (1st floor), Kruis Street, Johannesburg; capital, £900.

Fred Cohen Goldman and Co., Ltd., Post Office Corner Buildings, corner of Rissik & Market Streets, Johannesburg; capital, £30,000.

The Parisian Modiste, Ltd., Eggelings Buildings, Modder Road, Brakpan; capital, £1,000.

Frank S. Corder, Ltd., Top floor, National Bank Buildings, corner of Commissioner and Kruis Streets, Johannesburg; capital, £3,000.

Diamondkuil Diamonds, Ltd., 19, Corporation Buildings, Rissik Street, Johannesburg; capital, £2,000.

Gurney's (1920), Ltd., Store Bros.' Buildings, corner of Eloff and Pritchard Streets, Johannesburg; capital, £6,000.

Air Flights, Ltd., 9, Glencairn Buildings, Joubert Street, Johannesburg; capital, £4,000.

Klerksdorp Cream Receiving Co., Ltd., 5, Bells Buildings, Main and Harrison Streets, Johannesburg; capital, £2,000.

Edgar Allen & Co. (South Africa), Ltd., 5, New Club Buildings, Loveday Street, Johannesburg; capital, £3,000.

South African Trained Nurses' Association, General Hospital, Johannesburg; capital, £7.

Brooklands Dairies, Ltd., 5, Bells Buildings, corner of Main and Harrison Streets, Johannesburg; capital, £1,000.

A. G. KIDSTON & CO.

LONDON, GLASGOW, MONTREAL, SYDNEY (N.S.W.) AND NEW YORK,

INDENT MERCHANTS **METAL MERCHANTS**

LOWEST British, Canadian, Australian or American Quotations for

Plates, Bars, Sections,
Corrugated and Plain Galvanised and Black Sheets.
Tinplates,
Shovels, Picks, Forks,

Rails and Accessories,
Fencing and Baling Wires,
Wire Nails,
Black and Galvanised Tubes,

AND EVERY VARIETY OF STEEL AND IRON MATERIAL.

IMPORT ONLY.

SOUTH AFRICAN REPRESENTATIVE:

B. C. MYERS,
BATES BUILDING, Government Square,
JOHANNESBURG.
PHONE 2123.

GEORGE FLETCHER & CO., LTD.

Masson & Atlas Works, DERBY, England.

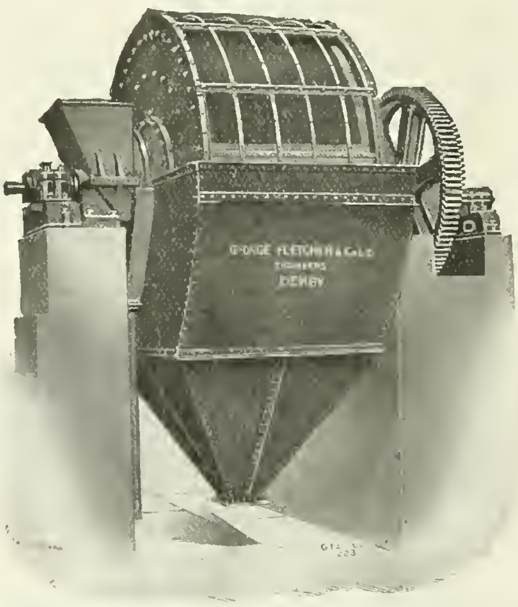
SPECIALISTS IN MINE, COLLIERY AND CEMENT WORKS EQUIPMENT.

Sole Agents for South Africa:—

ASSOCIATED ENGINEERS
Co., Ltd.,
DURBAN.

Tel. Add.: "SPRINKLER."
P.O. Box 478. 'Phone 450.

Resident Engineer:—T. McNICOL.



"AMARILLA" BALL MILL.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Just a Turn for Better—Merchants Substantial in Finance—Deals Cheaper to Arrive—Turps £2 Cheaper—The Spa Conference—Belgium Waking Up—Trade Finance—Cheaper Soft Goods under a Cloud—Iron and Steel—Electrical Goods—Timber and Paints.

With bated breath it can be said that things in the mining material and hardware trades show signs of an improvement. This is borne out by a leading broker who has prices at his finger ends, as well as being extra well informed as to the intricacies of the building and mining material business. He considers that values have reached their zenith, and signs are not wanting that the swing of the pendulum is slightly towards lower prices—gradually. For examples the price of deals to arrive from the coast is down to 1s. 10½d. and 2s. per foot, according to length, although more has to be paid for spot cash and spot delivery. Roofing iron is also easier at 1s. 5¾d. to 1s. 6¼d. to arrive, which, however, is a cut price for large parcels. Turpentine has never been so scarce and dear in Johannesburg, but a small consignment is now due at the coast and the price is from £7 10s. to £8 per 2-4 to arrive. The question was put as to whether the banks had unloosened their purse strings since the turn of the June 30th year. The reply was that he did not think so, neither was there any occasion, so far as the mining and hardware people were concerned, as they were fairly well to do merchants, and if it were desirable to reduce their stocks a thousand pounds or so to meet financial requirements it could be done without disturbing the market a hair's breath, as mining and hardware stocks were none too plentiful. So far so good, but our friend was rather full of the Spa Conference when he was reminded that it was certainly not a happy family. The answer came that it was so much the better, because if things went too smoothly, it might be a sign on the weak side that the fair promises might be of the "pie-crust" policy. If Germany pay in the future, she must do so by selling her manufactures to outside countries, as she cannot pay much or anything in gold at present. Figuratively she has to be nursed back with raw material, and, maybe, financial assistance, but once let her start, then business will hum again. In this connection an oversea paper has an article on Belgium and its rapid recovery since the War period. How rapidly she is recovering is shown by the fact that the people now receiving unemployment pay are but one-eighth of the number of those who had to be maintained by the State this time last year. The article concludes: "The Belgian worker does an honest eight hours' work a day, but is often an extremist in his views. He demands a levy on capital, the nationalisation of all industries, and so forth. He raises the prices of many commodities by his insistence on unjustifiably high wages; but with all this the country is prospering, and rapidly recovering from the awful destruction of the war, for the very good reason that Belgian Labour labours." If the Spa Conference is patched up fairly decently, then it is only a matter of time for Russia coming in for trading purposes. This may require the poverty and distressfulness of another Russian winter, nevertheless it must come, as people cannot stand seven Sundays of idleness to the week, singing we have got no work to do, when all their neighbours are busy with congenial employment, which quickly spells happiness and contentment.

TRADE FINANCE.

Johannesburg is very sound financially, and the Government, with its saving schemes, is doing good in reminding people how to obtain 20s. for 15s. 6d. In pre-War days the Government would have simply floated a loan in London and in a few weeks the whole thing would have been forgotten, but there is no forgetting now, because of the newspaper advertisements and glaring posters all over the town. From every point of view it is better to borrow in South Africa and so keep the interest in the country than to go overseas. What with the Government and the Banks drawing in a little here and there, it has assisted the Economic League, which, no doubt, up to a certain point has pulled people together and reminded them of rainy days. The failure of a wool firm is also a sharp reminder of how things are in that direction, and will make other traders go deeply into their ledger balances. And there is very little trading between merchant and merchant, whilst the speculative element are having quite a rest. Business is pretty much at a standstill in the wholesale soft goods line, because of heavy stocks, both here and at the coast. There are still a few speculators, but the big houses are disinclined to purchase at any price, presumably to see what will happen as a consequence of the wool surplus throughout the world. The cheaper kinds of cloth have gone down from 21s. per yard, three months ago, to about 14s. now. At present this only applies to South Africa's internal trade for job lots chiefly, and not to the oversea quotations. Naturally, if wool prices advance and again become stable, values will quickly recover, but obviously with the banks' attitude and over purchases, the waiting for events must push more cloth and drapery of kinds on the auction sales. The property market, according to the auction sales, was again poor this week, both in quantity and values. As an antidote, the

FOR SALE.

3 pair high Roller Mill by Turner, Ipswich. Latest design and in perfect running order. Capacity, 5 bags Mealie Meal per hour, also Crusher, capacity, 10 bags. Plant now being worked by 20 h.p. Electric Motor, 3 phase, 347 volts.

Full particulars from H. RUFFEL,
Box 40, Bloemfontein.

ALMOST
2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

share market has recovered slightly, which is a sign for much hopefulness. The great money strength of Johannesburg is the distribution of the all round higher wages and the landlords have had little or no reduction in their incomes, and, according to the report of the Rent Bill prophets, things in that direction will go on pretty much the same. The profiteering Bill also is rather milk-and-watery, hence it all reverts back to more production, and more production in South Africa—on the land, the manufactories and mines.

IRON AND STEEL.

Business still continues good in the Transvaal bar-iron and steel trade. The demand from the local engineering shops and foundries is better, as the mine repairs have become more in evidence since the turn of the month. There is a better demand from the railway for hexagon bolts and nuts. The imported prices are $\frac{3}{8}$ in. diameter, 1s. 3d. lb.; $\frac{1}{2}$ in., 75s. to 90s. per 100 lbs.; $\frac{5}{8}$ in., 70s. to 75s.; $\frac{3}{4}$ in., 65s. to 70s. Local prices for the sizes made here are about 5s. per 100 lbs. less. Imported rivets: $\frac{3}{8}$ in., 75s.; $\frac{1}{2}$ in., 70s.; $\frac{5}{8}$ and $\frac{3}{4}$ in., 60s. per 100 lbs. Wire nails, 52s. 6d. to 65s.; drill steel, solid, $5\frac{1}{2}$d. lb.; hollow, 1s. 1d.; shafting, $7\frac{1}{2}$d to $8\frac{1}{2}$d.: mild steel, 37s. 6d. to 39s. 6d.; steel plates, 50s. to 65s. per 100 lbs.; an active demand for 1-16, $\frac{1}{8}$ and 3-16 at top values.

ELECTRIC GOODS.

Business in the electrical goods market is very slow in town, but somewhat better in the country. Materials still continue to arrive in fair quantities. Prices remain much about the same. No lamps are expected here for some time, and therefore the price of these is keeping firm, viz., about 28s. wholesale, 32s. to 32s. 6d. retail; ceiling roses, adaptors and other materials much in demand and are still as scarce as ever; of tubing there is a large quantity on hand and the tendency is for values to go lower. Wiring is very firm and the demand is good for buildings in progress.

TIMBER, PAINTS AND BRUSHWARE.

Timber for delivery in Johannesburg on spot is firm and deals are 2s. 2d.; floorings, $10\frac{1}{4}$d. to $10\frac{1}{2}$d.; ceilings, $7\frac{1}{4}$d. to $7\frac{1}{2}$d.; and roofing iron, 1s. 6d. to 1s. $7\frac{1}{2}$d. Quantities of Baltic timber have arrived at the coast and more is on the water, therefore prices are easier to arrive. Values are expected to remain at present levels, until such times as to the progress or otherwise of the building trade, which is hardly questionable when the warmer weather is in evidence, as the Municipality and Government will, no doubt, have substantial orders to give out. Ready-made mixed paints are 1s. 6d. per lb. from 1 to 75 lbs. of the best quality. The reason there is no reduction in quantities is the fabulous price of turpentine, viz., about £10 per case, but it can be had at £8 to arrive. Linseed oil, 125s. raw and 135s. boiled for 2-4's. White lead, 100s. per 100 lbs, and 1s. 3d. lb. It is said that England exported over 20 million brushes during the first four months of this year, as the bristle market has now become fairly well established in London, as compared with bristles "at any price" immediately after the War. This enables Britain to offer better value than America, therefore, instead of Britain importing seven million brushes, as in the first four months of 1913, she has turned herself into a big export country, on balance.

EXPLOSIVES.

There is very little change to report in the matter of explosives and their ingredients. As a matter of fact, contrary to general expectation, the principal ingredients are rather advancing in price than receding. Glycerine remains very firm at Home at £110 per ton, with no immediate prospect of a drop, but considering the price of this was, not many months ago, as high as £163 a ton, a further fall in price of this most important ingredient may eventually be looked for. In the meantime there can, of course, be no question of lower prices for explosives. Nitrate of lead, owing to the recent drop in lead, has been reduced to £70, less 5 per cent., per ton, and fuze lighters have been reduced to £6 per thousand, less $2\frac{1}{2}$ per cent.

MOTOR SPIRITS.

There has been a certain mystery about petrol, as no news was obtainable from the big distributing houses. This is a pity, as it makes every one suspicious about hoarding, and the innendoes irresponsibly cast around must be irritating to the distributing houses. But seeing notices all over the town to sign the Petrol Petition, a further investigation was made. A dealer said that a boat was expected in, about July 25th, and another about the middle of August, also one from America in September, when stocks should be fairly plentiful. He thought that America was not over anxious to supply South Africa, as they could obtain better prices in other markets. The petition to the Government says that the importation of petrol is in the hands of a few firms, and owing to the enormous demand, relatively higher prices for petrol than those prevailing in South Africa are being obtained in other portions of the world's market, therefore the large oil companies prefer to sell their products in more profitable markets. The selling price being controlled by the Government, the petitioners ask for a free market, not subject to the control. Obviously the matter has become serious, as it costs time and money to prepare and obtain signatures to a petition. And, further, the petition is under the auspices of responsible men owning motor cars. Petrol supplies are a big thing, as at the close of 1918 there were 20,000 motors in the Union. Now there are 30,000, making a 50 per cent. increase, also just before the War our imports were only four million gallons of petrol and now it is double, with a motor expansion that is responsible for an advance of 50 per cent. in 18 months. According to a published letter from the director of the Vacuum Oil Company, there is not the slightest idea of any cornering being in existence. The first cause was the strikes of railwaymen in America, and the latest advices are to the effect that augmented shipments may be expected to leave New York in August. The company is endeavouring to import into South Africa more and more motor spirit to meet the increased consumption. The increased consumption is mostly the root of the trouble, therefore we must have as much patience as possible, now we know there is no cornering or hoarding. And, also, we have the satisfaction of feeling that this will give the African oil-shales the opportunity of securing a big market at their very doors. Natalite motor spirit also should have encouraging prospects now that every country in the world is demanding an ever-increasing supply of power in the shape of petrol.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams: "THAINE."

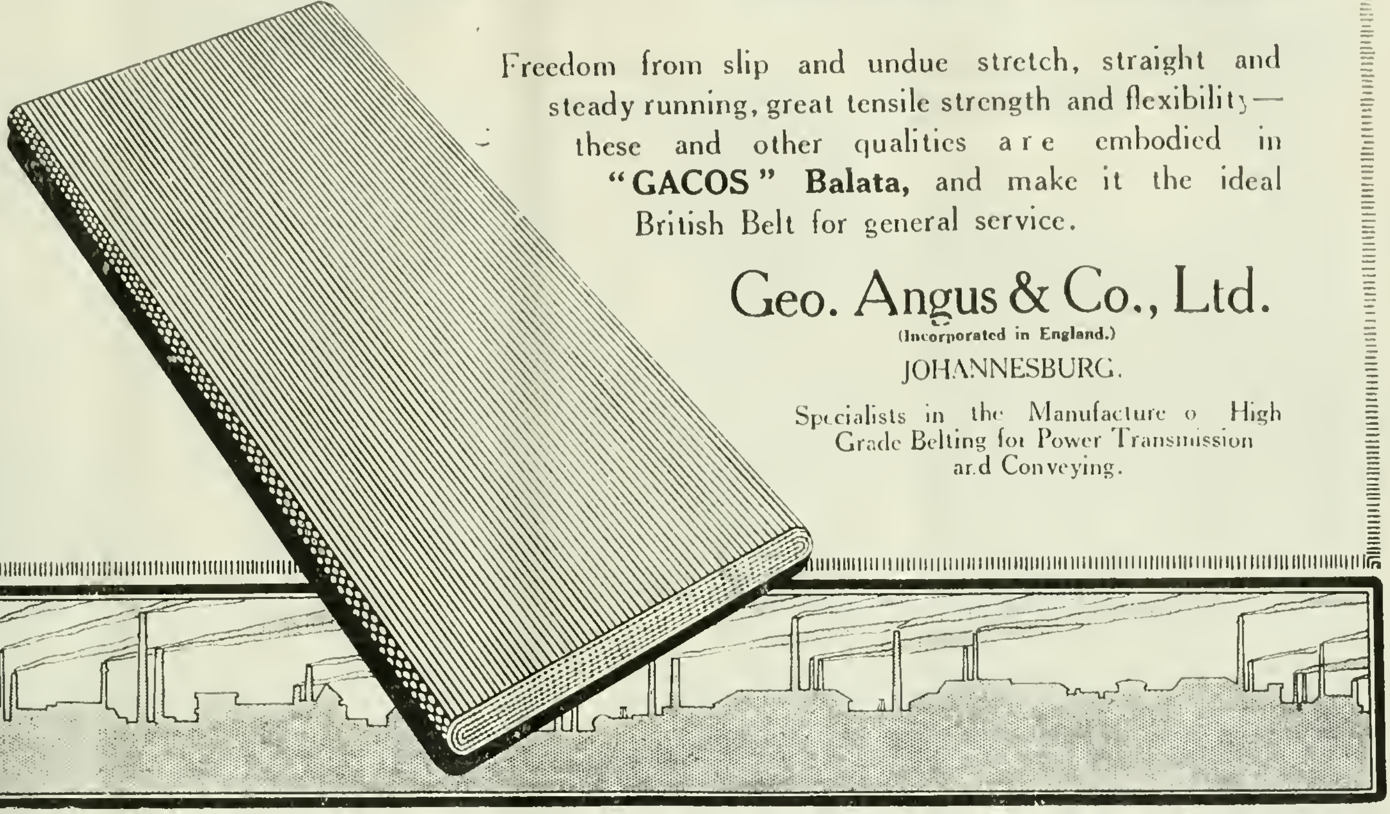
FURNACES
For all purposes.
50% Saving in Fuel.
COAL, COKE, OIL, GAS, WOOD, etc.
THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility— these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture o High Grade Belting for Power Transmission and Conveying.



C. C. WAKEFIELD & Co., Ltd.,

Manufacturers of

High-Class Lubricants

FOR

RAILWAY, MARINE, ELECTRICAL, MINE and COLLIERY WORK.

Makers of the Famous

"CASTROL" MOTOR OILS.

Patentees and Makers of

MECHANICAL LUBRICATORS.

P.O. Box 2123. Telephone 6418 Central
24/25, OCEANA BUILDING,
Simmonds Street,
JOHANNESBURG.

P.O. Box 1521.
HULSTON'S BUILDING,
Smith Street,
DURBAN.

Telegrams: "CASTROL."

The Week's Meetings.

VICTORY MONARCH.

We have now reached the stage that we are regular producers," said Mr. B. A. Meintjes, who presided at the second annual meeting of the Victory Monarch G.M. Co., Ltd., at 61, Standard Bank Buildings, Johannesburg, July 14, when proposing the adoption of the report and accounts.

On July 7, he continued, he received a wire from the manager stating that 15 stamps were now running, and that the machinery was erected to start five more, but that until the boiler on the property was erected the manager had not sufficient power to run the full number.

"I can assure you," he said, "that we have had a very rough time to bring things to the stage they are to-day, and it is a great relief to us to find that we have been so successful as to make the concern a profit-paying business. We really anticipated that by now we should have the twenty stamps running, and that our first tube mill would be running at the end of the month, but, in common with all mining concerns, we have had many disappointments to contend with."

He then pointed out that nearly the whole of the staff had been laid up with influenza, but that there were no deaths. This epidemic had put the work back for two months, there being a considerable interference with construction. Their last month's output was 1.300 tons, recovering 520 ozs. of gold, equal to £2,750 at the present price, and the working expenses were £2,460. When the 20 stamps were running the regular capacity would be 4,000 tons, and they would see, therefore, that the profits would be very considerable.

With the increased output their working expenses would not be greatly increased probably only by £500 a month. At present the working expenses were a fraction over 20s. a ton, and the manager assured him that once they had the 20 stamps running he would bring them down to 18s., and with an average of 7 dwts. that would give a profit of 17s. a ton. When the tube mill was running the expenses would naturally be very much cheaper. He might safely say that once they had the plant in full running order at the very highest the expenses would be 17s. 6d. per ton.

Insufficiency of Labour.

Proceeding, he dealt with the want of sufficient native labour, but said that with warmer weather he anticipated a sufficient supply. On account of the severe cold the natives were not anxious to go underground, and although they could get as many surface boys as they required the difficulty was with hammer-boys. They had failed to get boys from Rhodesia, but when the compressor was erected and drill stamps installed they would be able to work with a greatly reduced number of natives.

Few mining companies, he added, had the same difficulties to contend with as they had, and who at the same time became producers to the extent of paying expenses within twelve months of taking over the property. To his mind this had justified his original optimism that they had an absolutely good proposition. On the basis of 10.000 tons they had sufficient development to keep going for twelve months, but naturally they had to keep up the reserve for fifteen months, and the policy was that the reserves must not in any case go below what they were to-day.

He calculated that the mine had a life of 15 years on the basis of the output and further claims had been pegged which had not been taken into consideration in estimating the life of the property. One portion—seven blocks—was free from royalties, which would probably mean many thousands of pounds to the company in years to come. Those claims might later be run as a subsidiary company. In addition reef had been obtained about a mile from the property with the idea of keeping anybody from pegging. Mr. Levin had recently been in London, and the company's shares were now quoted on the London Stock Exchange. Mr. Levin had also arranged to have an office opened in London, and a secretary had been appointed there, so that in future dealings could take place in London without reference to the Johannesburg Stock Exchange.

Increase of Shares.

It was found that the number of shares was rather small for the London market, and it had been decided to put before the shareholders that day a proposition to increase the number. The number of shares issued was 56,750, and this was not sufficient even for the London Exchange—unless they had 50.000 it would be difficult to have dealings with them. The proposition was that the shares be split up into 5s. ones, which would enable the small and the large man to deal in them and to give London 60,000 to enable the company to be made popular on the Exchange there. That Exchange had asked for a mining engineer's report, and it was being arranged to obtain the best engineer in Rhodesia to report on the property. If the report was favourable they could naturally anticipate the result it would have on the market, and it was only necessary to publish the monthly statement, showing that the company was in a payable position when the stock would become very popular.

They had only started to crush at the beginning of January, and the profits for the three months were £3.520—£14.000 a year—or equal to 25 per cent. of the issued capital. Since then they had only crushed sufficient to pay their expenses on account of the new construction that was going on. Last month they made a profit, and from this month they would be able to gradually increase that profit and to pay a dividend in the near future.

Further Development.

To strengthen the company and to make for further development the directors would also put the proposition before them that day that, instead of paying the dividend in cash, the reserve shares should be issued at par to registered shareholders and the company be brought out as a fully paid up one of £75,000. The result of the next two or three months would show whether it would be necessary to issue those shares. They wanted to retain all moneys until they could pay a dividend of 20 per cent., so as to issue one share for every five held by shareholders. He did not want to be too optimistic, but he hoped this would happen before the end of the year. It all depended on the result of their next two months' work, when they would be able to judge what was before them in the future.

In conclusion, the Chairman dealt with the question of the water supply, and paid a high compliment to the efficient work done by the manager and the staff.

The report and accounts were adopted unanimously, as were also the resolutions submitted by the directors.

The list of certificates issued by the Mines Department for the period ending 10th July, 1920, is as follows: Mine Overseers (Metal Mines): C. F. Coney, J. L. Hide, W. James, J. N. Stanford, L. J. von Maltitz. Mine Surveyors: E. W. Bower, C. J. D. Veal. Mechanical Engineers (Mines): G. E. Dawson, R. Millar, J. H. Smart, G. E. Sturgeon, H. Stuthridge, C. J. Taylor, N. L. W. Taylor, P. Woodside; (Works): G. E. Dawson, J. C. Fraser, J. H. Smart. Electrical Engineers (Mines): J. O. Arnold, A. E. Bartlett, W. E. K. Brindley, A. Campbell, D. P. Hogg, S. Hogg, L. Rowley, J. T. Spiers, R. Wilson; (Works): P. Fraser.

ELECTRICAL PURIFICATION OF CLAY.

The most novel application of electricity to industry is the purification of clay. A machine designed for this purpose was recently exhibited before the Royal Society, London, England. It consists of a trough with a cylinder which slowly revolves over a grating through which the "slip"—a mixture of clay and water is forced. When the cylinder is connected to one pole of an electrical circuit and the grating to another, the electrical effect separates the fine particles of clay from the water and deposits them on the cylinder, whence they are removed by a scraper. By this simple and ingenious process, known by the name of "electrical osmosis," low grade and dirty china clays can be used to produce pure fine clays for pottery and for the manufacture of "art" paper. The clays used for fire-clay are made more plastic and also more fire-resisting as a result of the electrical treatment. The same process can be applied in tanning leather and in the preparation of glue and gelatine.

PRIZES FOR BRITISH RESEARCH.

Many industrial research associations have been formed in Great Britain, and are working in conjunction with the Department of Scientific and Industrial Research. The expenses of the research are met partly by the industries concerned and partly from State funds. Co-operative work of this kind has not, however, discouraged private enterprise in research. Many firms are extending their research laboratories, and prizes are being offered for success in special directions. Sir Robert Hadfield, for example, has deposited £200 with the Institution of Mechanical Engineers to be awarded as a prize for a new and accurate method of measuring the hardness of metals. Present methods are not very satisfactory especially with very hard metals.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED
South African Mines, Commerce and Industries

VOL. XXIX., PART II. JULY 21, 1920 [No. 1504.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 491

Topics of the Week:

The Fate of the Currency Bill 493

The Improved Outlook for the Rand 495

Geology in Relation to Mining 496

The Early Pioneer of the Transvaal Goldfields—Some Reminiscences 497

Present Day Problems of Rand Mining 499

Diamond Question in the Union Assembly 500

The Exchange Problem in South Africa 501

Primitive Mining and other Scenes in the South-West Protectorate 503

The Week in the Sharemarket 505

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 507

Notes and News.

African Oils.

Information has been received from overseas to the effect that the 60 tons of shale despatched to Great Britain for trial treatment will be tested at the Pumpherston works. Development of the Company's property at Wakkerstroom continues to give highly satisfactory results.

* * * *

Gold Smugglers.

Since the export of gold coin in excess of the value of £5 was prohibited, something between £15,000 and £20,000 has been confiscated from the persons and baggage of Indians leaving Durban, says the *Natal Witness.* All sorts of ingenious devices are still adopted to get money out of the country, such as the use of false bottoms and lids for trunks, bicycles, fruit and so on. Several hauls have been made recently and the Customs Authorities always make a diligent search when vessels leave this harbour. Under the new scheme of repatriation of Indians the Government has now decided that every adult Indian returning to India can take £25 in gold with him, or £25 worth of jewellery, or £25 in gold and jewellery, with a maximum of £50 for each family.

* * * *

Diamond Fields Mining Institute.

A scheme is under consideration by the De Beers, the United Mines, and the Kimberley Mine Reading and Recreation Rooms for the formation of a joint body, called the "Diamond Fields Mining Institute." The principal objects of this organisation would be to provide for lectures and papers on any practical, scientific or technical subject of popular and instructive value. The proposal, to be successful would require the support and co-operation of these three recreation rooms, but it would not in any degree affect their present independent activities. In addition to the support that would be provided through the recreation rooms, outside members would be welcomed from any persons interested in the scheme. The promoters, we understand, are on the look-out for people willing to lecture on such subjects as Mine Ventilation, Machine Drills and Compresed Air, Safety First, Explosives, Mine Pumping, Timbers and Timbering and other technical subjects, and would welcome volunteers.

* * * *

Explosives Trades.

What is virtually the first report of the Explosives Combine has just been issued and shows, in effect, very satisfactory results. The Combine was formed in November, 1918, under the title of Explosives Trades, Ltd., and comprises twenty-nine concerns, including all the largest British manufacturers, such as Nobels, Kynochs, the British South African Explosives and Curtis's and Harvey. The balance sheet is brought up to the 31st December, last, and includes the dividends received from the constituent companies out of trading profits for the year 1918, and also the dividends payable by them in 1919. It is naturally impossible to make any comparison with previous figures when such a big group of concerns has been amalgamated, but the total net profits exhibited, amounting to £1,655,200, as against an issued capital of £14,844,900, is not a bad record, considering that the policy outlined at the inception of the Company involved the rapid transition from war conditions to peace industries with general consolidation and reconstruction and the extension of the Company's interests into a wider range of activities. It would be interesting to know how the profits have been obtained. Unfortunately, it is impossible in the case of such a widespread combine for the various activities of the different works to be detailed in the report, and it will be necessary to wait until the meeting before we learn how the big explosives factories have succeeded in so profitably utilising their resources for peace work.

Rhodesian Railways.

Both the Rhodesia and Mashonaland Railway Companies show declines in earnings in their reports for the year ended 30th September last, which are just to hand. The Rhodesia Railway's net earnings fell by £118,400, due to a decline of £56,800 in gross receipts and an increase of £91,700 in expenditure. After payment of Debenture interest and providing for depreciation and renewal account, £100,000 is set aside to reserve and £188,900 carried forward. The Mashonaland Railway did fairly well in the matter of gross receipts, but its expenses went up by £54,000, giving a decline in net earnings of £55,800. The Company, however, is still on the wrong side of the fence, as after paying Debenture interest a further sum of £94,000 has to be added to the debit balance. Fortunately, the earnings on both lines have been better during the last six months, since the accounts were closed.

* * * *

Altered Mining Regulations.

Some important amendments were discussed last week by the Mine Workers' Union Executive on the eve of a Conference with the Chamber of Mines, and of a joint deputation to the Government Mining Engineer. The proposals involve the rearrangement of underground work, and one effect, it is calculated, will be to get six or six and a half hours of drilling for natives per shift, instead of the present five. Some portion of the miners will go down before the general shift, and start not only their own boys but also those in adjacent working places, with consequent advantage of increased time for drilling. "It is a big concession on the part of the miners," said a prominent member of the Executive, "but is made so that no one will be able to say that the workers are not willing to assist the low-grade mines." The proposals were accepted by the Executive, only on the condition that the Union could arrange an agreement with the Chamber as to the number of working places they might have to supervise.

* * * *

Why Cornish Mines are Closing Down.

"To say to its friends the present crisis in Cornish mining is heartbreaking is but feebly to express the sentiment which prevails both inside and outside Cornwall," says the *Mining World*. "So far, if we accept the resolutions passed by the various public bodies in Cornwall, the apparently futile deputations to the Government and the publication of the Non-Ferrous Mining Committee's report, there has been little evidence of practical sympathy within the country itself. Crises have occurred in former times, but help has been forthcoming from within, without waste of time in local conferences or in useless journeys to London to interview Governmental departments. Now, however, as far as Cornish mines are concerned, philanthropy has gone and sentiment has disappeared. The friends Cornish mining would formerly have found at such a crisis are either dead or, as they say at the post-office, 'gone away; left no address.' But why are the mines closing down? They are closing down because it costs too much to produce the tin. That is the crux of the whole position. The tin is there, but it costs more than 20 shillings to produce the value of a pound sterling. The tin industry could have withstood the oscillations of the metal market, and even the rise in the miners' wages, but the advanced prices of materials and supplies are killing it, and unless relief be found, it must put all but the richest *hors de combat*."

* * * *

A Ministry of Mines for Great Britain.

The introduction of a Bill for the establishment of a "Ministry of Mines" has alarmed the British taxpayer by the suggestion that a new official incubus is to be placed upon his shoulders. This fact has evidently been realised in Ministerial quarters, for accompanying the text of the Bill for the establishment of the new Ministry is the following "apologia" inset as a leaflet:—Beyond the salary of £2,000 made payable by the Bill to the Minister of Mines, the establishment of the new Ministry is not likely to involve any substantial increase in expenditure; inasmuch as the majority of the powers of the new Ministry will be derived from the transfer of existing powers from other Government departments, the concentration of which in a single department is one of the chief objects of the Bill. With the powers will be transferred the staffs of the other departments now engaged on the administration of the services to be transferred—for example, the staff of the Mining Department of the Home Office and of the Coal Controller's Department. With respect to the extension of the continuance of the Coal Mines (Emergency) Act, 1920, it is not anticipated that the extension will involve the necessity for any additional advances from the Treasury to the account established under that Act.

* * * *

The Position of the Rezende.

The report of the Rezende Mines, Ltd., for 1919 states that during the year 96 claims were abandoned, chiefly outlying blocks near the old Penhalonga workings, which have been closed down for some years. The output from the Rezende mine for June, 1919, and succeeding months came within the new gold premium arrangement, and the estimated premium to be received on the outputs for these months is £15,866. Accounts are summarised as follows:—Revenue—From bullion recovered during the year, £149,860; withdrawn from bullion reserve account created in 1918, £12,540; estimated gold premium, £15,866; from other sources, £2,086; total £180,352. Expenditure—Working costs, £87,105; London and Salisbury office expenses £2,683; depreciation, £6,648; Rhodesian income-tax, £5,446; directors' fees, £800; extraordinary expenditure written off, £8,793; total £111,475, leaving a balance to be carried to appropriation account of £68,877. The foregoing expenditure includes an amount of £2,500 reserved to meet Rhodesian income-tax for 1919, and it will be observed that the cost of diamond drill boreholes put down at the Old West section, and also the cost of the François cementation process treatment undertaken during the year with a view to lessening the influx of water into the mine, have been written off. Dealing with the appropriation account, the balance of £74,671 brought forward, together with £68,877 for 1919, make a total of £143,548 for disposal. Of this amount dividends Nos. 10, 11 and 12 and the directors' additional remuneration thereon have absorbed £63,000. The option on the Kent Mines property terminated in May, 1919, when in view of the development results obtained, it was deemed inadvisable to exercise the company's option of purchase; the expenditure on development and exploratory work on these claims is, therefore, written off to the amount of £23,606; the company, however, still retains a considerable shareholding in Kent Mines, Ltd. The amount of £8,741 has been written off against appropriation account to reduce Old West development expenditure to a nominal figure of £1,000. The amount of £48,200 is therefore left to be carried to the balance sheet. Depreciation on machinery, plant and buildings has been written off at the rate of 5 per cent. on last year's balances and 2½ per cent. off additions during the year. The new circular shaft has been written down to £9,000. Efforts have been made to reduce the amount of money locked up in stores and material kept at the mine, the balance of £24,918 comparing with £36,720 as at 31st December, 1918. The ore reserves in the Central and Eastern sections at 31st December, 1919, are estimated in the mine manager's report at 165,248 tons, value 10·72 dwts. as compared with 175,374 tons, value 12·66 dwts. at 31st December, 1918. The 272,316 tons, value 3·0 dwts. at the old West workings referred to last year are now left out of account, and the development cost at Old West has been reduced to a nominal figure of £1,000 by writing off against it the balance of share premium account £6,145, and by taking £8,741 from appropriation account. The Old West workings are at present let on tribute and are producing a fair annual revenue. Dividends Nos. 11 and 12 each of 20 per cent., absorbing £48,000 payable to holders registered on 15th July, 1919, and 31st December, 1919, were declared by the directors as interim dividends, in the case of dividend No. 12 to avoid delay in payment which would have occurred had the dividend declaration been held over until the annual meeting. A final dividend for the year is not recommended by the directors and the total paid for the year under review is therefore 10 per cent.

TOPICS OF THE WEEK.

THE FATE OF THE CURRENCY BILL.

The Currency Bill has passed its second reading by a substantial majority, and is now in the Committee stage. Students of parliamentary procedure agree that the second reading is invariably the most critical stage in the passage of a measure, and that Mr. Burton's Bill will be given legislative effect to is now a foregone conclusion. It is highly significant that the day the opposition to the Bill became negligible, and it passed its second reading the exchange rate on London was reduced to normal by the banks. This, to our mind, constitutes the best possible tribute to the Bill, because it proves that the certainty of its passage removed from the banks the necessity of providing, by the maintenance of high exchange rates, against a continuance of the drain of gold from the country. The conclusion of the debate showed that only Mr. Jagger and Mr. Creswell remained serious opponents of the Bill; the others, including General Hertzog, voting for it with a reservation in favour of making alterations in Committee. It is extremely doubtful if these alterations will be accepted, or that the unity of the Bill can be affected without seriously impairing its value and efficacy. Outside of Parliament it is noteworthy that Mr. Burton's summing up of the debate has resulted in the *Rand Daily Mail* veering round to the side of Mr. Burton and Sir Abe Bailey, while *The* Star also now comes out bravely in support of the Bill. A new twelfth-hour critic, however, in the person of Mr. Charles Hewitt writes complaining of the Government's "unseemly haste," unmindful of the fact that the proposals he condemns have been before the country for six months, and that the present controversy has been raging even longer. As far back as February 14 of this year we wrote:—"The whole country is indebted to Mr. Henry Strakosch for the light he has thrown on the present critical exchange position of the Union, in the report from which we print extracts in this issue. Mr. Strakosch returned ot the Rand only a few weeks ago from London, where he had won during the War a notable reputation for the sound advice and practical assistance he had given the Treasury authorities on the abstruse problems of currency and exchange that had obtruded themselves during the dark days of that struggle. This journal was the first—indeed, we believe, the only—organ of public opinion in this country to invite the views of Mr. Strakosch on our monetary difficulties; and we are flattered to know that our example was promptly followed by the Prime Minister, at whose instigation Mr. Strakosch prepared his present contribution to the discussion of the burning topic of the moment. Our extracts but faintly reproduce the clearness, the consecutiveness, and, indeed, the inevitableness of his reasoning. His handling of the rule-of-thumb economists is mercilessly effective, and makes one regret that he had not appeared earlier on the scene to stop some of the vapourings that have lately been filling the columns of our daily papers. The real value of Mr. Strakosch's pamphlet, however, is not dialectic or destructive. It is frankly constructive, and embodies what is to our mind the best proposal to remedy the existing anomalous state of the exchange and the currency of this country." And again in the same issue we wrote: "A few weeks ago an interview appeared in these pages with Mr. Henry Strakosch, the managing director of the Union Corporation, Ltd., on the subject of the currency crisis. Mr. Strakosch, who has only recently returned from England, is regarded as one of the first authorities in the City of London on the foreign exchanges. Mr. Strakosch has now prepared a paper on the currency and exchange problem as it affects South Africa, which, we venture to say, will become a classic." A week later, under date February 21, we wrote:—

> "The reception accorded to the pamphlet by Mr. W. Strakosch which was reviewed and extensively quoted from in our columns last week, has very naturally proved a trifle mixed. That, of course, is always the fate of the reformer. The Labour people, as is their wont, have read into it a deep plot to filch from them their "rights," as if an honest, public-spirited attempt to put our credit and currency on a sound basis could possibly be so construed. Some people who ought to know better profess to regard it as an *ex parte* plea for the mining industry; while this is offset by some leading men connected with the gold mining industry regarding Mr. Strakosch's proposals as, in their ultimate effect, contrary to the interests of the industry. The week's discussion, therefore, tends to confirm us in the belief that the recommendations made in Mr. Strakosch's pamphlet provide us with quite the most attractive and scientific solution of our present currency and exchange problems that we have yet encountered. At a moment like the present, when every second man in the street has his own views on how the currency and exchange questions ought to be settled, it is obviously a real help to be able to apply some simple test to the value of the conflicting opinions offered. That test, in the case of the author under review, exists in the proved soundness of his past judgment. In the present case it is necessary in appraising their value to consider in their entirety the remedies advocated by Mr. Strakosch. Thus it is neither fair nor sufficient to say that his short and simple panacea for our present ills is to be found in the issue of Treasury Gold Certificates. That proposal has to be read with the recommendation to reform the banking system of the country, to which Mr. Strakosch devotes his final chapter. His treatment of this vast and all-important subject is printed fully in another part of this issue; and though he omits to say so plainly, we have reason to believe that Mr. Strakosch regards the need for the reform of the banking system as just as urgent as the other measure advocated by him. The crisis of the past few weeks has shown that though, economically, a young country compared with the United States and the European States, we have need for a scientifically-conceived, central reserve bank whose function and reason for existence would be to give stability and elasticity to our credit and currency system. The United States, we can all remember, were continually subject to violent financial crises that did more than anything else to hamper their progress till the establishment of the Federal Reserve System just before the War. Opinions may and do differ regarding the merits of that system—which was based on a study of European systems—but there is no question that the alternative to its isolated, competitive banks would have spelt financial chaos for the United States in the unprecedented conditions that obtained during the War.

People who now come forward to complain of the Government's "rushing tactics" must surely have been asleep during the many months the subject has been before the public. And the fact remains that the very promise of the Government's Bill now becoming law has brought back the exchanges to normal and created a new feeling of confidence throughout the country. Certainly the banks acted in a panicky manner some time ago when they realised what they would have to pay to replenish their ever-disappearing gold reserves. But we must in fairness give them some credit for immediately extending to trade the benefits they foresee as bound to flow from the coming into force of the currency measures now being carried to fruition by the Government after months of enquiry, study and delay.

Our Coal, Iron and Steel Supplement.

With our issue of July 31st will be included an important supplement dealing with the steel and iron and coal industries and resources of South Africa. The tremendous potentialities of the Union as a producer of iron and steel are only now beginning to be realised, and in this special supplement it will be our endeavour to give a general idea of the immensity and value of the iron beds of South Africa which await exploitation, of the various enterprises which within the past few years have ushered in the dawn of a steel manufacturing epoch, and of the tremendous markets which are available locally, and possibly overseas too, for a South African iron and steel industry. Hand in hand with the iron and steel industry marches the coal industry. In this as in every other country the fates of iron and steel enterprises are indissolubly mingled with the extent and prosperity of the coal mines, and in this special number we shall review the fortunes of the South African collieries in the light of all the many important developments which have taken place since our special coal supplement was issued at the beginning of the year. The future of the iron and steel industry of South Africa is a matter which so closely touches upon our national life and future that we feel sure that this forthcoming coal, iron and steel supplement, which will be copiously illustrated, will receive world-wide attention, and those who desire copies of the publication are earnestly advised to book their orders well in advance.

SIEMENS BROTHERS

& CO., LIMITED

RUBBER CABLES.

PAPER CABLES. FLEXIBLES.

"STANNOS" WIRES.

ENAMELLED WIRES.

TELEGRAPH CABLES.

TELEPHONE CABLES.

JOINT BOXES.

COMPOUNDS. TAPES

CABLE APPLIANCES.

EBONITE.

TELEGRAPHS.

TELEPHONES.

RAILWAY, MINE, SHIP
AND
POWER STATION
SIGNALLING.

FIRE ALARMS.

TUBULAR POLES.

LATTICE POLES.

OVERHEAD LINE MATERIAL.

FLUID & DRY CELLS.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

Established 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE IMPROVED OUTLOOK FOR THE RAND.

Reduced Gold Realization Costs—Increasing Gold Premium—Clearer Labour Horizon—Favourable July Returns Anticipated.

The clouds are lifting over the Rand, and if only the poorer mines can carry on till production increases and costs come down, the crisis facing so many more of them may be overcome. Indeed, at the moment of writing the favourable factors far outweigh the unfavourable, and in mining circles a feeling of quiet confidence is beginning to reassert itself. The favourable factors may be set down as (1) increased premium on gold, (2) reduced realization charges owing to return of exchange rates to normal, and (3) more settled labour conditions. In addition to these general reasons, there is the special one affecting the July returns that the month is free from holidays, and that all the indications are in favour of an increased output.

The Increased Premium.

The increase in the premium on gold cabled this week, though not unexpected, is a welcome help in these times of adversity. The premium means a rise of over 26 per cent., and is directly traceable to the larger purchases of gold by India (now that the embargo on the import of gold to that country is removed) and to the usual autumn movement of the London exchange more in favour of the U.S.A. because of the demands of the American harvest.

The rise in the premium on gold, of course, was anticipated by Sir Evelyn Wallers in his speech at the last annual meeting of the Chamber of Mines; and it is satisfactory to note from recent writings and speeches on the subject that the general opinion in London is that the premium on gold will remain for much longer than had been expected. It is true that some of our local authorities differ; Mr. H. Newhouse, has stated, with reservations, that he believes the premium will be reduced to vanishing point within a comparatively short period.

The Reduced Realization Charges.

The importance of the reduction in the bank realization charges announced this week, may be gauged from the fact that for May the realization charges were estimated at no less than 8s. 9d. per fine ounce, and last month were 7s. per fine ounce. The improvement of 3s. per ounce in the premium and 7s. per ounce in the realization cost, therefore means a total improvement in favour of the mines amounting to 10s. per ounce, or, taking the Transvaal June output at 715,957 ounces, a total increase of £357,978 per month to the gold mines of the Transvaal. That the realization charges will not again hastily be increased is fairly certain, as the banks seem now satisfied that the Government is in earnest with its Currency Bill, which will obviate the threatened big expense to them of importing gold to meet the drain on their reserves. That drain, it may be repeated, was the cause of the panic measures taken by the banks a few months ago to recoup the loss to them of importing sovereigns from London.

Better Labour Conditions.

For the moment, at any rate, there seems to be no cloud on the white labour horizon on the mines. It is true that efficiency still leaves much to be desired, and that there must be considerable reorganisation of the white labour force before conditions can be written down as satisfactory. But the tendency is towards improvement, and we must, nowadays, be thankful for that small mercy. The President of the S.A. Institute of Engineers, Mr. Whitehouse, and several company chairman have lately appealed to the men in their own interest to put forth increased effort, and should that appeal bear fruit, that fact, coupled with the higher price temporaily being received for the product, may save the low-grade mines that are still threatened with closing down.

PERSONAL.

Mr. G. A. Denny is paying a visit to Rhodesia on business.

* * * *

Mr. W. T. Anderson, C.B.E., M.I.M.M., formerly of Johannesburg, has joined the board of Anglo-French Exploration Co., Ltd.

* * * *

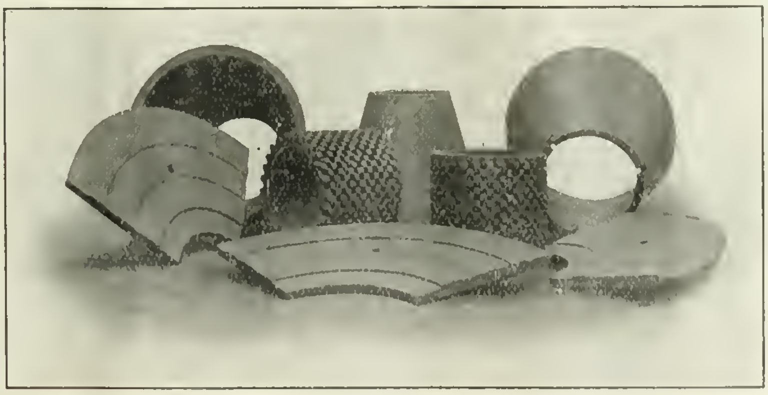
The Rezende directors remark upon the great loss which the company sustained by the sudden death of Mr. S. R. Jameson in October, 1919, and in consequence of which no consulting engineer's report for the year is available. Mr. D. V. Burnett has since taken over the duties of consulting engineer as from March, 1920. Mr. L. H. Blackbeard resigned his position as mine manager on January 31, 1920, and the directors appointed Mr. A. S. Rome to fill the vacancy.

Zaaiplaats Tin.

The Zaaiplaats results for the month of June, 1920, were as follows: Mill ran 7 days; concentrates won, 28 tons; estimated loss for the month, £729 17s. 6d.; capital expenditure £84 16s. 11d.

Postmas Diamonds.

The above company has entered into contracts for the erection of machinery and plant for the No. 1 mine, capable of treating 1,000 loads per day. The bulk of the machinery has already been despatched and contracts for the completed plant have been entered into. The directors hope to have the plant running by the end of October, 1920.



Phone 4673. Box 3162.

OSBORN'S
"TITAN" Manganese Castings,
For
Rotary and Jaw Crushers and Mortar Box
Liners, etc., and for all parts subjected to
severe abrasion.

Samuel Osborn (South Africa), Ltd.,
Sheffield & Johannesburg.

GEOLOGY IN RELATION TO MINING.

Mr. F. P. Mennell's Address Before the S.A. Association for the Advancement of Science.

In the course of his Presidential Address to Section B. of the South African Association for the Advancement of Science, on "Geology in Relation to Mining," Mr. F. P. Mennell said: The original occupation of most of South Africa, Rhodesia excepted, had been due to the pioneer efforts of the farmer, or more correctly the pastoralist, rather than to the miner, but no country owed its material advancement in greater degree to its mining industry. His own province had been largely that of the geologist rather than the mining engineer, and it was from the geological standpoint that he discussed some of the problems confronting South Africa. We had recently witnessed the successful establishment of blast furnaces in Canada, in Australia, in India, and still more recently in South Africa itself, where three separate concerns were now in operation. The time could not be far distant when the Empire would be self supporting in the iron and steel industry, except as regards certain special departments wherein the inherited skill and hard-won experience of the British iron-master and his workmen would enable them to maintain their position for another generation at least. If the newer nations of the Empire became indepenlent in that direction they would easily develop in others. If this country had the great future before it which most of them believed we must show that its internal resources are sufficient in kind and in amount to form the basis of those industries necessary to make them to a great extent independent of importations from oversea. Here the aid of the economic geologist was of the utmost value. He believed that the Union of South Africa cou'd obtain from within its borders supplies of almost everything essential for its industrial development, and the same might be said with even more confidence of Rhodesia. Though the latter could not claim to rival the stupendous gold output of the Rand, it possessed an almost unequalled variety of mineral products, actual or potential, already it led the world in its output of chromite and of the higher grades of asbestos, and the time could not be far distant when its enormous resources in coal and in iron and copper ores would be exploited as their extent justified. These would no doubt have their development assisted by the employment of one or other of the great sources of water power which existed at various points in the territory. Mining engineers could do much to help on geological work. Points of great value could often be gathered from their reports and these would be still more useful if the writers would make a practice of having their rocks named by competent authorities. There was a number of very important metals—gold, silver, copper, lead, zinc, antimony, etc., which appeared to have no very well-marked tendency, except over limited areas, to occur in connection with one particular rock type rather than with others. But with other minerals the case was different. There were two very well-defined groups of minerals, one of which occurred almost exclusively in conjunction with basic rocks like serpentine, while the other was almost as invariably associated with acid rocks like granite and its offshoots. The basic group included the metals platinum, chromium, manganese, nickel, and cobalt, as well as magnesite, talc, asbestos, and also the diamond. The acid group of metals comprised tin, tungsten, bismuth, molybdenum, uranium, tantalum, zerconium, cerium and thorium, together with such minerals as mica and graphite. The minerals of the basic group were almost invariably found inside the limits of the rock mass with which they associated them. With minerals of the acid group the case was often quite different. It was only necessary to emphasise the necessity of caution in generalising too freely when making observations. That it did not do to dogmatise too freely on apparent associations is well illustrated by what is now known of the Sebakwe district. The reefs there included the largest gold produce in the country, namely, the Globe and Phoenix, as well as the Gaika, Moss other smaller properties. These were all situated along the granite contact, and might therefore be claimed as typical examples of the theory of close association with the intrusion of the granite. Closer examination, however, showed that they cut across certain dykes of the granophyre family, which might be termed quartz-porphyries. The latter were clearly younger than the granite, and it might therefore seem that the reefs belonging to the group of which the importance had been emphasised by Mr. Maufe. The fierce light of publicity which shone upon the Globe and Phoenix Mine during the great law suit over the right to work under the John Bull claims had nevertheless demonstrated that there are still younger igneous rocks which had to be taken into account. They saw how more detailed knowledge might gradually alter their opinion regarding the genesis of ore deposits, though each one appeared in turn to fit in admirably with successive theories.

What was really of most value in discussing ore deposits was detailed field work influenced as little as possible by theoretical consideration. The position of the ore body was of first importance, and the problem which it was essential to solve was the relation, if any, which existed between the ore body and the richer portions thereof, and to adjacent rocks or rock structures. Even more important might be what was perhaps to be regarded as applied mineralogy, namely, the investigation of the extent to which secondary processes had influenced values in the upper part of the ore body, and hence the probabilities of the downward extension of the payable ore. This was clearly by far the most important matter in sizing up the possibilities of newly-discovered lodes or mineral districts, and one to which far too little attention had been paid. The kind of work required in the investigation of the mineral resources of a country was far more closely allied with the kind of work required to lead to success in drilling for oil than was generally thought. The mere identification of a particular rock as similar in every respect, and then already known as an ore carrier, justified a close examination of its outcrop, and the determination of the various periods of ore deposition.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%.

Overseers.—22 Certificates out of a total of 35 in South Africa in 1920. Our passes during a recent 6 months (1919-20) were 95%.

Surveyors—Our new class obtained the only Certificate in South Africa, March 1920 Examination. Over 60 successful candidates have received sectional tuition from us.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

"SaBeN"

SHEFFIELD

STEELS

(SANDERSON BROS. & NEWBOULD, LTD.)

FOR ALL MINING AND GENERAL ENGINEERING PURPOSES.

MINING STEEL, HOLLOW DRILL STEEL, FORGED SHOES & DIES, CRUCIBLE STEEL HEADS, CAMS AND TAPPETS, AIR-HARDENING STEEL, HIGH-SPEED TWIST DRILLS, SHAFTING, MILD STEEL BARS, ETC. ETC.

—all can be supplied from stock.

Sole Agents for South Africa:

BARTLE & CO., LTD.
LOVEDAY HOUSE. PHONE 3553. WIRES: "FAGGOT."
BOX 2466. JOHANNESBURG.
AND AT KIMBERLEY.

THE EARLY PIONEERS OF THE TRANSVAAL GOLDFIELDS: SOME REMINISCENCES.

(By W. P. TAYLOR.)

When I was asked to preside at the meeting of the old Pioneers, Mr. Julius Jeppe having been unable to do so, it gave me a particular pleasure, and, as I said at that meeting, it was a duty that I loved to perform. I saw faces there of those whom I had not seen for many years, and it took my thoughts back to the far early days when the Rand was nothing else but veld. The vista of an old Pioneer is long and goes far back. I feel that in writing these few words I should go back to the beginning, as far as I am concerned. My mother was a pioneer before me and went with the early Dutch to Natal, therefore, I may say that pioneering is in my blood. The very first pioneer that I remember seeing was when I was a child of about seven or eight; we lived in the old village of Stellenbosch, and one evening a wagon and oxen arrived from somewhere on the Orange or Vaal Rivers and had been on the road for some months. The old Dutchman that brought it down was a typical man from the country of those days, and I well remember, together with several other curious village children, looking into the passage where sat the old man, who, in the dim light of tallow candles, was exhibiting from a leathern sack a collection of stones that he had picked up, and which, as far as I can remember, were agates and other diamond river stones. He was telling his friends of all the possibilities of the country, and we children ran home to our mothers with the tale of wonders we had seen. It was not long after that that the "Star of South Africa" was found, and from that time movements took place in every village and town and people flocked up to the diamond fields, and I little realised at that time that I as a mere child should join the throng. Yet in 1870 I found myself, a boy of eleven, working at the river diggings at Pniel. From that time I have been associated with diamonds and gold mines, and in 1882 found myself in the Transvaal prospecting all the country around here for what several of the old pioneers of that day felt was sure to exist, and that was a great goldfield. It has, I believe, been claimed by several that they were the first discoverers of the Rand. There were several men hard at work prospecting for it before 1886, but as far as I can say, the true discoverer of the Rand was Fred Struben.

A GROUP OF PIONEERS OF THE TRANSVAAL GOLDFIELDS.

Photo taken at the inaugural meeting of the '87 pioneers of the Transvaal Goldfields, presided over by Mr. W. P. Taylor.

The "Outside Fields."

There were pioneers before that who worked at Pilgrim's Rest, Barberton, Swaziland, Eersteling and other places, but as the Rand became a great commercial reality and as the pioneers of this Association are those of the Rand specifically, it is the latter that I am perhaps more directly addressing. Of course I understand that all early pioneers can and should join the Association, and it is hoped that when we of the first order are no more, that our sons and daughters after us will help to keep the old associations and memories green.

The Pioneer as Builder.

All my lifetime I have been a builder and I fully recognise that all pioneers are builders. It would be an impossibility to make a Bolshevik out of a pioneer. Look back centuries and see the first adventurers who went out to spy the new world and gain information and wealth for their mother country. They were the foundation stones of an Empire. Coming back to modern times we have Cecil John Rhodes—as great a pioneer as any of the old world adventurers, a man whose dreams were but for his country and his fellow men. It is not talk that counts, it is deeds, and all those who leave for new countries to pioneer undertake the most arduous part of a country's history. Invariably pioneers do not accumulate great wealth, and they have the roughest time, but in their sturdiness and independence they lead lives of great happiness and set an example to their progeny. The early settlers of the Eastern Province have left names that will remain pillars for time immemorial, and so it should be with the pioneers of the Rand. It is not alone the discovery of this great goldfield but it is the many things throughout South Africa and the world that have eventuated through its discovery that count; and it is interesting to me to see how persistent some pioneers are in their vocation, for many of the discoveries and developments and resources of this country can be traced even now to old pioneers or their progeny.

It would be invidious to individualise in these early reminiscences and would be overlapping with the efforts of the 1886-87 Pioneers' Association, as it is part of their business to collect data for a book, which will be brought out later on.

Like others of our old Pioneers I left South Africa and lived in other parts of the world, but there is some indescribable feeling which calls one back to Africa. Each country has its own characteristics, and one feels that when one comes back to this climate one loses the desire to leave it and undergo the changes one suffers in Europe and other places. What the Indian summer is to the Indian, the Rocky Mountains to the Continent of America, so the allurements of the veld and our clear dry winter is to South Africa.

Immediate Delivery

Comprehensive Local Stocks Held

OF

DIRECT CURRENT MOTORS AND DYNAMOS.

ALTERNATING CURRENT MOTORS,

In Sizes up to 50 B.H.P.

MOTOR STARTERS.

OIL SWITCHES.

ISOLATING LINKS.

IRONCLAD SWITCHGEAR.

CIRCUIT BREAKERS.

INSTRUMENTS.

REGD TRADE MARK REGD TRADE MARK

THE BRITISH GENERAL ELECTRIC CO., LTD.

Telephones 4242/3. JOHANNESBURG. Tel. Add.: "CURRENT."

P.O. Box 2406.

Branch Office: 83/89, Castle Street, Capetown.

And at Port Elizabeth, East London, Durban, Maritzburg, Bulawayo, Lourenco Marques, etc.

PRESENT DAY PROBLEMS OF RAND MINING.

Questions of Ventilation and Underground Temperature Pressures—Difficulties of Deep Mining.

(By JAMES WHITEHOUSE, B.Sc., President of the South African Institution of Engineers.)

It is my intention to refer to certain factors which have a distinct bearing on our position to-day. We are six years older than we were when the War started, and many mines have during this period become deeper. I would like to make a few observations on the effect of this depth on underground temperatures and pressures.

The temperature gradient given in a paper read by Mr. Wotherspoon and myself before the Chemical, Metallurgical and Mining Society in 1911, has proved to fairly accurate, and the rock temperatures continue to rise at the rate shown, namely, one degree for every 253.9 feet of depth. From determinations made recently in the Village Deep Mine, the rock temperature at a depth of 5,487 feet has been found to be 89.4 degrees.

The temperature of the most advanced air current which reaches to this depth is 72.6 degrees dry bulb, and 71.6 wet bulb, which I think you will agree is satisfactory in view of the rock temperature at this depth, and the distance the air has to travel. I regret that I am not able to give figures for the lowest point in the mine, which his now reached a depth of 5,880 feet. Unfortunately, this has been under water for some little time, and has, in consequence, been cooled down, and the figures are therefore not reliable. This low rise of rock temperature is, I think, unique, and compares most favourably with the temperatures experienced in the St. John Del Rey Mine, which, I believe, is the only mine in the world which is deeper than the Village Deep, and where the air temperature is 109 degrees F. dry bulb, and the rock temperature 114.4 degrees. The depth of this mine is 6,126 feet vertically.

Slow as the rise of temperature is in these mines, at depths between 5,000 and 6,000 feet it is sufficiently hot to justify the installation of adequate equipment for circulating large volumes of cool air, so that the air temperature may be kept as low as possible; and, in addition, any dust which may be released into the atmosphere will be swept out of the mines and, in consequence, cause no damage to health. This surely is a direction in which we, as engineers, should strive, both from a humanitarian as well as an economical point of view to obtain the greatest efficiency. The possible saving is of very considerable importance, since the cost of Miners' Phthisis to the Industry is amounting to £1,200,000 per annum.

The efforts which have been made during the last few years in this direction have resulted in a very considerable decrease in the quantity of dust found in underground air, the average for the whole of the Witwatersrand having been reduced from 4.9 milligrams per cubic metre of air for the year 1915 to 2.2 for 1919. It is possible that by the means now used for the allaying of dust, a material decrease below this figure will not be obtained, and it would appear that in addition to the generous use of water, the provision of increased volumes of fresh air may be the means of bringing underground conditions still nearer to the standard desired by all, namely, dust-free air.

This subject has been most carefully studied during the last few years, and great progress has been made in the knowledge of the dreadful disease which is so closely identified with Rand mining, but there would appear to be still much to be accomplished. Medical evidence has led us to believe that the most dangerous dust is that composed of the finest particles, and the investigations of Drs. Watkins Pitchford and Moir have shown that the average size of quartz particle in lung dust examined by them is 1.2 microns. This being so, increased ventilation would appear to be the best means of coping with it. It has often occurred to me that in many ways it would have been fortunate if Rand dust had been of an explosive nature, since, had it been so, those responsible for its formation could not have escaped the consequences with impunity, and the complete displacement of dust laden air would have become a necessity.

Good ventilation exercises a beneficial influence on the adverse factor of high vapour pressure with high temperatures, and as these are present to-day in the deeper mines, the question must receive serious attention, or a lowering of efficiency may be expected.

This effect has been fully dealt with by Dr. Haldane, who compares the body during sweating to a wet bulb thermometer, which indicates not the dew point, but a temperature intermediate between the dew point and the actual temperature of the air, and dependent on both.

He has shown that if the wet bulb temperature exceeded about 88 degrees F. in still air, it was impossible to prevent rise of body temperature during rest. In a good current of air, however, a wet bulb temperature several degrees higher could be borne. It made no appreciable difference what the actual air temperature was, only the wet bulb temperature and the movement of the air mattered.

During muscular work, with the wet bulb as low as 78 degrees, the body temperature could hardly be prevented from rising during moderate work in still air. In a good air current, on the other hand, continuous moderate work was possible with the wet bulb at 85 degrees F.

From the above, it will be seen that on these fields we are approaching temperatures at which a lowering of efficiency must be expected unless the ventilation of the mines is carefully regulated, since there is little prospect of the quantity of water which is used being reduced, and the increase in rock temperature will no doubt be regular.

Whilst the effect of depth on the temperature of underground workings is less serious here than, perhaps, in any mining field, this connot be said of the resulting pressure, and the difficulty which this causes in deep workings. I cannot do better than give you a comparison of the actual cost of support of working on a deep level mine to-day, and in 1911.

From these figures it will be seen that the cost of timbering and rock-walling in 1911 was 10d. per ton crushed, and in 1919 this charge had increased to 2s. 5.4d., an increase of 1s. 7.4d On the basis of wages paid in 1911, and the cost of material at that time, the cost for this work in 1919 would have been 1s. 9.6d. per ton, an increase of 11s 6d., or more than double the 1911 cost. This represents the increase which is entirely due to depth, the difference between the present cost and 1s. 9.6d. per ton, which is 7.8d. per ton, being due to the increase in wages and cost of materials.

Similarly the most of winding has risen from 1s. 8.6d. in 1911 to 2s. 9.7d. for 1919, of which increase 8.5d. is due to depth, so that the cost for this work, apart from charges due to the War, would to day have been 2s. 5.1d. per ton.

If to these amounts we add the extra cost of the Phthisis contribution, which is carried in the working costs of the mine, and which has increased from .925d. to 9.15d. per ton crushed since 1914, it will been seen that, apart from any effect on working costs due to the War, the increase on these three accounts amounts to 2s. 4.325d. per ton.

The increased charges due to depth for pumping, ventilation and the distribution of water for dust allaying, might be similarly treated, but I do not propose to carry this analysis further to-night.

It will be seen from the above figures that, quite apart from the increase in operating costs due to the War, the conditions obtaining in deep mines to-day are very different from those of 1914, and it is, I think, wise for us to realise this. The position of our great Industry will appeal to all of us present here to night as a sorry one, indeed, and the question we must ask ourselves is, "What can be done to save it?" Many suggestions have been made by others than engineers, and these include one that the reduction works should be removed at once from the surface and erected underground in order to save the cost of hoisting, and another that the water from deep level mines should be syphoned from the mines, and the cost of pumping thereby eliminated. Amongst the section from which these suggestions come, there seems to be some doubt as to the value of education, and it would appear that it is a common idea that the only necessary section of the population is that which to-day works under the direction of others. If this were true, it is clear that the development of our sons' muscles is of more importance than the training of their intellects.

Some years ago, when fresh burdens were placed upon the Industry, it was possible by engineering progress to balance them, and this was accomplished many times. The task to-day, however, is of such magnitude that we have discovered that we are only engineers and not magicians, and that it is not possible to progress at the rate that burdens have fallen upon us.

We are told that increased production is the only remedy for our condition, and whilst we are grateful to those who made this discovery, it would appear to be no easy matter to increase our production at a time when working hours have been reduced and conditions are more difficult. However, if this is to be accomplished, it is clear that the task falls on the engineer to provide the means whereby production can be increased, and his responsibilities to the world are greater than ever before, since he must now control more expensive labour and material than he controlled in the past, and in consequence the new condition of things calls for the highest possible standard amongst engineers. There never has been a time when a great effort was required more than it is to-day on the part of all in order that disaster may be avoided, and we, as engineers, are called upon to play a big part in the struggle.—*Abstract from Presidential Address.*

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:

46 Survey Certificates to date, including three Honours Certificates.

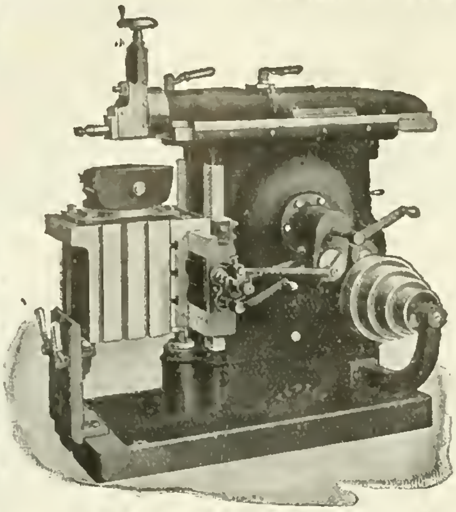
Elsewhere One Survey Pass has been obtained to date.

Last two Managers' Examinations combined we secured 15 passes from 19 entries, a truly remarkable record.

We established a percentage record of passes, January, 1920, Managers' Examination.

We lead with Overseers Passes, 1918 and 1919, combined.

WRITE FOR PARTICULARS AND CLASS TIME TABLE.



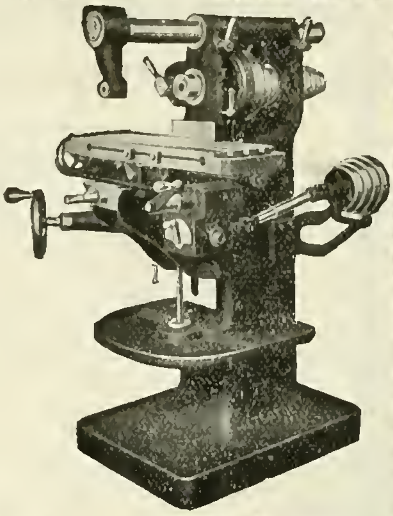
STEPTOE SHAPERS AND MILLERS

Seventy-five years of experience in the manufacture of high grade machine tools with thousands of our machines in shops all over the world giving daily satisfaction are recommendations that you should not overlook in the selection of your equipment.

Send for a copy of our catalogue showing our entire line of Shapers and Millers, also complete specifications, prices, etc.

Steptoe Shapers can be supplied with cone drive, single pulley drive or motor drive. Each machine before leaving the factory is thoroughly tested by corps of inspectors.

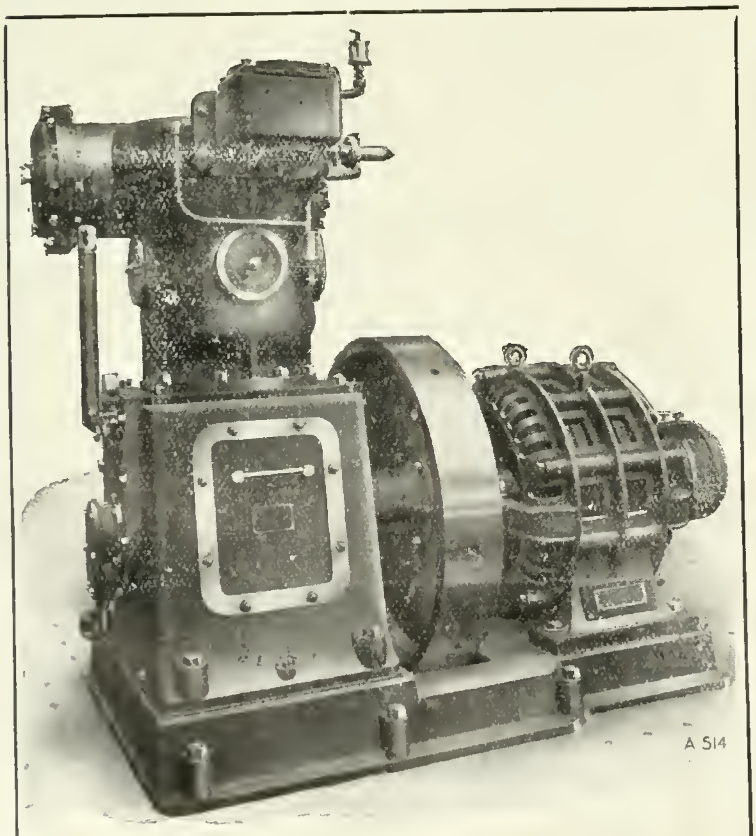
SOLE SOUTH AFRICAN AGENTS FOR
The John Steptoe Co., Cincinnati, Ohio, U.S.A.
BARTLE & COMPANY, LTD.,
P.O. BOX 2466. PHONE 3553. WIRES "FAGGOT"
LOVEDAY HOUSE ——— JOHANNESBURG.



DIAMOND QUESTIONS IN THE UNION ASSEMBLY.

In the House of Assembly last week, in the course of a discussion, Mr. Beyers criticised the Minister of Mines as being incapable of attending to the duties of his post. He described the Prime Minister's actions in regard to the German West diamond interests as extremely suspicious, showing that the Government was mainly concerned with the interests of De Beers. The Government's policy, he said, aimed at playing everything into the hands of De Beers and enabling them to have the greatest share in the production, and was a perpetuation of the system of mine magnatism, which his side would not tolerate.

Mr. Malan, replying to the various points raised, said the price of alluvial diamonds had fallen in the last few months by 35 to 40 per cent. It was incorrect, however, to say that alluvial diamonds were not being sold. The Minister pointed out that alluvial diamonds had been fetching unduly high prices, and the result of those high prices had been that old stones had been put into the market, thus increasing the supply and reducing the demand. In addition, during the American Presidential elections, the demand for diamonds in the country had slackened off. Another reason for the drop had been the fact of the banks having been unwilling to advance money on the export of diamonds. In spite of these facts alluvial diamonds still fetched higher prices than they did when the 10 per cent. export tax was imposed. In these circumstances the Government, while bearing in mind the motion recently carried by the House, did not consider the present was the time to carry out the request contained therein of establishing a Diggers' Bank, and of taking off the 10 per cent. tax. The Minister dealt at some length with the question of the diamond mines in the South-West Protectorate. He pointed out that the negotiations took place after the blockade had been raised, and when proclamations had been issued that trade relations with Germany could be re-established. He had heard that one man went to Berlin in an aeroplane to negotiate. But anyhow the negotiations in question were carried through in London, and no breach of the law would have been allowed. The Government had decided that there was no objection to Union money taking over the German diamond mines, and there was no reason why the headquarters of the company should not be in Capetown. The rights of eight of these mines were recognised, but those of the ninth would come before the Concessions Commission now sitting in the South-West. The question of opening any area to the small man, the Minister added, would only be settled after the finding of this Commission.



SOLE AGENTS:
THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

A REMARKABLE BRITISH GAS ENGINE.

British engineering firms are showing remarkable skill and enterprise in developing new types of internal combustion engine. One of the latest and most interesting of these types has been designed to meet the demand in steel works for large slow-speed gas engines. Continental practice has favoured the horizontal engine, which is huge enough to fill a church, but the new British engine referred to is of the vertical design, which takes up only a fraction of the space filled by the horizontal engine. Most vertical engines have previously been high-speed machines, but this one runs at only 125 revolutions per minute. This result is achieved by arranging the cylinders in pairs, one above the other, and placing a pair on each side of the crank. Thus four cylinders combine in driving a single crank. The mechanical arrangements are so admirable that although an engine of 1,000 horse-power is about 20 feet high, hardly a tremor can be noticed at the extreme top even when the engine is running on an overload. An engine of this power is now working successfully in a leading British ironworks, being used for generating electricity.

THE EXCHANGE PROBLEM IN SOUTH AFRICA.

Strong Condemnation of Inconvertible Paper Money—Nationalist Ideals and Wool Drafts.

By CHARLES HEWITT, A.S.A.A.

The people of South Africa view with commendable equanimity the drop in the bank rate, and they will continue to do so till prices begin to rise, which will not take very long. It is possible that the extreme seriousness of the banks' action is not understood, so I propose to give a few facts and figures on the point. Money is definitely less valuable—that is, it has less purchasing power—than before the drop to the extent of 7½ per cent. The only virtue which money possesses is the power which it gives its owner to purchase other commodities. There are three classes of commodities on offer in South Africa: (1) imported goods, (2) exportable goods, and (3) goods not manufactured for export, but which compete with imported articles. It will be clear after a little reflection that the prices of all three classes are affected by the change which definitely reduces our currency to the level of Bradburys. The imported goods will be so much dearer because a larger cheque will have to be drawn to meet the bill. The exportable goods will be dearer because the price is fixed by prices abroad, less exportation charges, and the locally-produced goods, competing with export, will cost more because the price has always been fixed by the cost of importing similar goods.

Necessity or Choice?

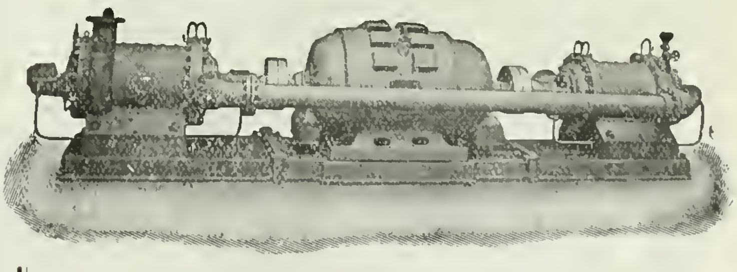
It is therefore clear that in the short space of a few days money has been depreciated. It would be necessary to go to the eastern countries of Europe for anything approaching such a revulsion of values. Few countries with any claim to a sound currency would stand such action by the banks without a violent protest. Admittedly, currency in other countries has depreciated, though such a violent drop in so short a period is possibly without precedent; but in such countries the drop has taken place out of sheer necessity, whereas in the case of South Africa it is the outcome of a decision of bank directors and managers. The autocratic powers possessed by these gentlemen must be the envy of the Bolshevists. No civilised Government possesses such powers; and if it did, it would not dream of wielding them. The banks in South Africa had in custody for customers at the end of December £110,000,000. Add to this, say, £12,000,000 in circulation, making a total of £123,000,000. The purchasing power of this money sustained a clear reduction of nearly £10,000,000. The fact cannot be gainsaid, though it will take a little time to become apparent.

It may be argued that existing stocks must be exhausted before the effect is felt. Though the idea is widely entertained, there never was a greater fallacy, and this fallacy penetrates even to the Legislature. It may be asked, "Why should I pay more money for old stocks bought at a lower price?" The merchant, if he knows his book, will reply: "Sir (or Madam), the stocks are admittedly old, but unfortunately your money is new, because the Czars of bankdom have by an edict reduced its value. I admit that I quoted £92 10s. for the article a week ago, and that I am now asking £100, but the £100 which I am now asking is only of the same value to me as the £92 10s. would have been when I quoted that price." The merchant's contention is unanswerable. In the country districts, where barter prevails, the storekeeper will not give the same value in commodities for weevily as he does for sound mealies. I know of no person, even amongst the members of the Economy League, who, if they have anything to sell, insist on accepting pre-War prices.

The Government and Depreciation.

A house built before the War is intrinsically no more valuable to-day than it was seven years ago. It is probably less valuable, because it has been subjected to a certain amount of wear, tear and exposure. Yet, expressed in terms of money, its value is about 50 per cent. higher. The reason, of course, is that our money is not so good as the pre-War money. It is weevily. The Government can not, or will not, see this. Our sovereign to-day has only a local significance, whereas formerly it had a world-wide significance. The sovereign has become a token coin which, unlike other token coins, is intrinsically of greater value than the value for which it exchanges. The Provincial Council impose an increment duty on "profits" made on the sale of fixed property, whereas the bulk of the so-called profits represents the diminished value of the currency. The Union Government attempted to fix rents round about the pre-War figures, regardless of the fact that the pre-War rentals were paid in good money, whereas the present rents are being paid in money which has not only depreciated, but the value of which is subject to the hourly caprice of

SPECIAL MACHINERY, TOOLS, APPLIANCES and EQUIPMENT
MANUFACTURED TO CUSTOMERS' REQUIREMENTS.
Accuracy and quick delivery guaranteed.
Enfield Machine & Auto Tool Co., Ltd.,
ENFIELD, MIDDLESEX, ENGLAND.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.

Pumping Set suitable for lift of 2,500 ft.
LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.
For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

the banks. They are also making appeals to the people to save, and say that if they pay 15s. 6d. to-day in five years' time they will have 20s. But it is conceivable that in five years' time the 20s. might buy very much less than does 15s. 6d. to-day. The Government gives no guarantee against depreciation. They do not say, for example, that the depositor will receive for each 15s. 6d. a golden sovereign of the same weight and fineness as the one of which to-day he gets an occasional glimpse, and which he can exchange for a greasy, slimy note which has probably been in contact with a native's skin for a month, if he makes himself sufficiently unpleasant at the bank. If the Government gave such a guarantee the savings club movement ought to have the support of everyone. Until such a guarantee can be given it deserves no support.

The Banks' Intelligent Anticipation.

All indications seem to point to the Currency Bill going through. The banks certainly anticipate its safe passage through the House, else they would not have dropped the buying (and selling) rate. Then the farmers are keen on it, and that says everything. Exchanges with England will continue at a parity because the farmer wants it. The man who suffers—the individual on a fixed income—can just tighten up his belt, though it may involve the punching of a few more holes. Though his class is numerically stronger than the class in favour of the Bill, he is inarticulate. He can only voice his protest at election times, and there is no election looming. The native who has no vote and who is unorganised will be the biggest sufferer by further rises in prices or reduction in the purchasing power of money, which is the same thing. The farmer will continue to pay him a penny per sheep for shearing, as he did in 1913. Our legislators talk constantly about a liberal native policy. When the history of our bank-made currency crisis comes to be written, the part relating to our treatment of the natives will not deserve inscription in letters of gold.

How the Mines are Affected.

The mines will score a temporary advantage in the drop in the rate, but it cannot be many months before the advantage is overtaken and passed by higher costs in every department. Higher costs will not be the only drawback. Men never have worked well, and never will work, for paper money which has a fluctuating value. This is the history of paper money throughout the ages in all countries. The following is a quotation on the point from a book written, not within the last few months, but in 1904—ten years before the outbreak of War. The writer is Professor Kinley, of the Massachusetts University:—

> The evils of depreciating and fluctuating paper money cannot easily be over-emphasised. Inflated prices introduce an element of uncertainty into business. Business men cannot be sure that the prices at which they contract to sell or buy will remain the same from the time the contract is made until the transaction is closed. Speculation of the worst kind becomes a feature of business life. Business sagacity is thwarted, and the spirit of prudence gives place to that of gambling. Risks of change, the probability of inflation or contraction, must be discounted, with a wide margin. The result is to produce greater changes in prices than the mere difference in the amount of money would itself cause. Moreover, the speculative fever thus engendered introduces a demoralising influence into a community; a desire to get rich quickly is stimulated, to the detriment of that security and steadiness which are essential to sound business methods and morals. Expensive living becomes the fashion. The normal price of all property rates so much higher than it formerly did that people regard themselves as grown suddenly rich, forgetting that the change is a nominal and not a real one. When a contraction of the paper-money flood takes place these changes are reversed, but as it is so much harder to retrench the expenses of living, and to think of one's self as becoming poor by the fall in nominal values, the feeling of sacrifice and loss engendered depresses a community and for a time deadens enterprise. Moreover, the fluctuations of the value of inconvertible paper defraud creditors or debtors, according to the direction of the movement, without any corresponding advantage or offset, and they bear down severely on wage-earners. Wages are paid in paper, and, since wages do not rise as early or as rapidly as prices do, the cost of living is increased to all wage-earners.

Reading some of the speeches made in the House, one would almost conclude that inconvertible paper money was everything that was good, instead of being everything that was bad. European nations have adopted it out of dire necessity; we adopted it out of choice, and we are continuing it out of choice.

The exquisite humour of the Nationalists' attitude must appeal to most people with a sense of the ludicrous. They repudiate the Imperial connection. They want settlers, but prefer Germans to Englishmen. They have the greatest contempt for all our traditions and all our institutions—except one. As long as they can get their wool and maize drafts cashed at par they accept wholeheartedly being as much a part of England, from a currency point of view, as is the Duchy of Cornwall.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

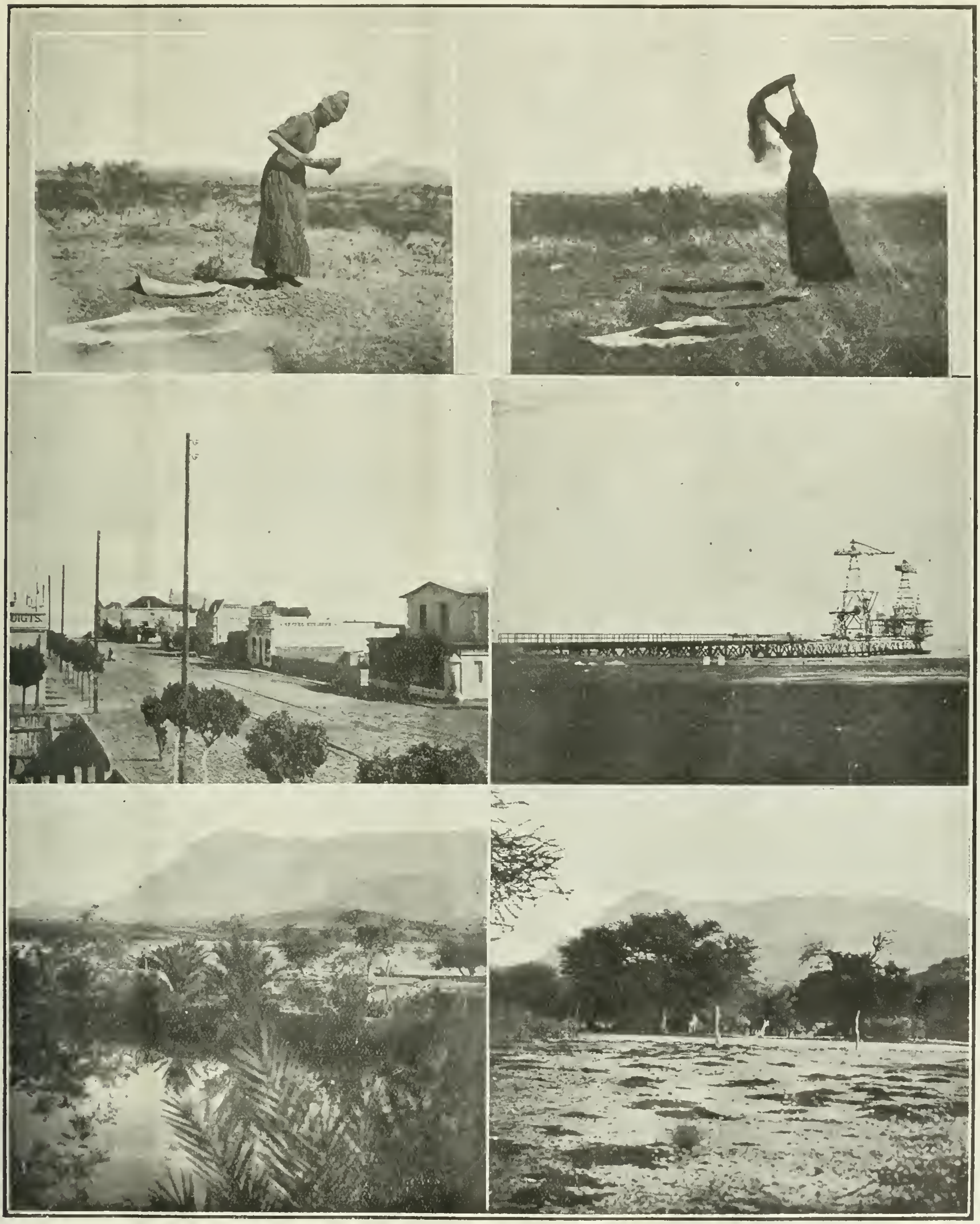
Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

ASBESTOS

HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

PRIMITIVE MINING AND OTHER SCENES IN THE SOUTH-WEST PROTECTORATE.



These Pictures, from the Camera of a well-known Rand mining engineer, who has just returned from a tour of South-West Africa, show, at the top, the very primitive methods of winnowing for cassiterite in use. The top figure on the right is engaged in the initial process of separating the dry dust from the heavier matter, and the top figure on the left is concentrating the latter. The photos in the middle show Swakopmund and its pier, and those below are two views in the neighbourhood of the Erongo Mountains.

Mr. F. A. Covett on Future of Lead and Zinc.

Although Mr. F. A. Govett, speaking in mail week at the Broken Hill meeting, finds himself unable to make any "reliable forecast" as to the course of lead and zinc prices, he sees no immediate prospect of prices coming down. "After a big storm," he says, "the sea takes longer to get calm," or, to change the metaphor, "the length of time required for any explosion to lose heat depends proportionately on its magnitude." The world has passed through the greatest convulsion ever experienced, and it is impossible for it to immediately cool down. The question of prices is mainly that of supply and demand, and that implies the social and industrial position throughout the world. Whatever that may be, it would seem fairly clear that prices must be high for some time ahead, and if coal and labour are going to be permanently high, it will not be possible cheaply to produce lead and spelter at a profit. Rougly, then, Mr. Govett expects a continuance of high prices, although it must be recognised how large a part is played by speculation from the fluctuations which occur on any fresh hope of termination of labour troubles. Mr. Govett points to Belgium as furnishing an object lesson which should be studied by labour throughout the world. Belgium has always been largely occupied with the smelting industry, and Belgium is the solitary example of rapid recovery from the War. This recovery is attributable entirely to the willingness, and even the eagerness, of labour to work, for longer hours if necessary, in order to recuperate. What a contrast this presents to the attitude of labour in other countries where the policy appears to be to "go slow," or not to work at all, with the result that production is reduced and costs are enhanced.

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.

Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Telegrams: "DELTA."

Offices:
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Phones 2596-7.

THE WEEK IN THE SHAREMARKET.

Increased Activity—Far East Rand Stocks Improve—Diamonds Better.

Not for months has there been such a good market as we have witnessed during the past week. The two sudden and dramatic declines in the bank rate of exchange which have brought down the difference between London and Johannesburg by six per cent. have, of course, been a paramount factor in the situation, and the improvement in the gold "premium" has also given rise to well justified optimism. The reduction in the Bank rate means, of course, a very great saving to the mines in gold realisation payments. Moreover, from a market point of view the disappearance of a six and seven and a half per cent. difference between here and England has caused London to turn buyer instead of seller—as London has been for months past. The outlook generally must certainly be regarded as good and although at the time of going to press cables report an easier "street" tendency on account of the Russian business, the majority of people competent to judge are of the opinion that there is a good prospect of stocks continuing to advance in price. The recent severe slump has been followed by a most noteworthy upward movement, and it will be surprising if some of the bears who have taken undue liberties with stocks do not find themselves in difficulties. All the big Modder and Far East Rand shares have had substantial rises during the past few days. The drop in exchange rate coupled with a rise in the price of gold up to 107s. means roughly an appreciation of 10s. per ounce in the output, and rich and poor mines alike have exhibited the improvement in their fortunes by an appreciation in share prices. New Modders have been very firm around 69s. Modder Bs have risen to as high as £6 8s. 6d. and Modder Deeps are better at 43s., but have not responded to the rise in the market as much as might have been expected. Springs, after being down to 28s. 6d., have advanced to 39s. Gedulds are much better at 41s. and at the time of going to press the shares of the two big Barnato Mines—Government Areas and Van Ryn Deeps—are in good demand. Modder Easts have improved to 24s. and the debentures to £123. Development at this property continues to expose excellent values, and profits at the Apex mill are improving.

In diamond shares, Frank Smiths have witnessed large business around 17s. and are tipped to go better still. Rouxvilles, on news of an excellent wash, and the reported finding of a big stone, had a sensational run on Thursday morning up to 29s.

Tin shares have been inactive. In industrials, Pretoria Cements have been a strong feature at 114s. and African Oils have risen to 16s. on favourable reports from the property and overseas.

	Fri., 16th.	Sat., 17th.	Mon., 19th.	Tues., 20th.	Wed., 21st.	Thurs., 22nd.
Anglo-Amer. Corp.	32 0	34 3	35 0	35 0	35 0	34 0*
Apex Mines	—	—	—	—	7 0†	—
Bantjes Cons.	2 3*	2 6*	2 7*	2 8*	3 0	3 1*
Blaauwbosch Dmds.	—	80 0†	—	—	80 0†	—
Brakpan Mines	50 0*	—	—	52 6	53 6	51 6*
Breyten Colls.	—	—	8 0*	—	8 0*	8 0*
Brick and Potteries	—	4 0*	—	4 6*	4 6*	4 6*
British South Africa	15 0*	16 0*	—	—	—	—
Bushveld Tins	—	1 4†	1 4†	1 6†	—	—
Cassel Coals	36 0†		—	—	—	
Cinderella Cons.	4 6†	—	—	4 6†	4 6†	4 6†
City and Subs.	5 9	6 0	6 3*	—	6 0*	6 3*
City Deeps	46 0	46 6	49 0	47 6*	48 0*	48 3
Clydesdale Colls.	23 6*	—	24 0*	24 0*	—	24 0*
Con. Investments	—	—	—	—	—	27 6*
Con. Langlaagtes	—	—	17 6†	17 6†	17 6†	—
Con. Main Reefs	12 4½	12 6	13 0	13 0	13 0	13 0*
Coronation Freeholds.	1 1	1 7*	1 3	1 1*	1 3*	1 3*
Crown Diamonds	7 3	7 3	7 3	7 6	7 9	7 3
Crown Mines	—	—	47 0*	—	50 0*	—
Daggafontein Mines.	10 3	13 0	12 6*	12 3	12 0	12 0b
East Rand Coals	—	2 6*	2 3*	2 3*	2 4	2 3
East Rand Deeps	—	1 0†	0 9*	0 8*	0 9*	0 9*
East Rand Minings	10 0*	12 6		—	13 0	—
East Rand Props.	7 0	7 0*	8 0	8 1	8 0*	7 6*
Frank Smith Dmds.	16 0	16 6	16 10	16 10½	16 9	16 9
Geduld Props.	37 9*	38 3*	39 6	40 0	41 6	40 6
Ginsbergs	—		—	—	1 0*	1 0
Gleneairns	—	—	—	1 0*		
Glencoe Collieries	—		—	6 0*	6 6*	—
Glynn's Lydenburgs	10 3*		—		—	
Govt. Areas	84 6	86 6	87 0	86 3	85 9*	87 3
Jhb. Br. of Ex.	38 0*	—	38 0*	38 0*	38 0*	38 0
Jupiters	2 0*	2 0*	2 0*	2 0*		2 0*
Klerksdorp Props.	2 0*	2 0	2 0*	—	2 0*	2 0
Knight Centrals	3 7b	3 7*	3 9	4 1*	4 3	4 0*
Knights Deeps	—	4 6*	—	5 6*	6 3*	—
Leeuwpoort Tins	19 0	22 0	22 0	21 9†	20 9	21 3
Lace Props.	9 0	10 0	10 0	10 3	10 3	11 9
Lydenburg Farms	7 0*	7 3*	—	7 3	—	7 6
Meyer and Charltons	80 0*	—	—	—	—	—
Middelvlei Est.	—	—	1 3*	1 3	1 5*	1 6*
Modder Bs	118 0*	120 0	125 0	128 9	129 6†	125 0
Modder Deeps	42 0	43 0	43 0	43 3	44 3	44 0
Modder Easts	21 9	22 0	22 0	22 6	22 9	23 7½
Do. Debentures	£110	£112	£112½	£115½	£117	£122
Do. Opts. (4 yrs.)	6 3	6 6	6 9	6 10	6 11	7 6
Hume Pipes	22 0*	22 0*	21 6*	22 3	22 6†	22 6†
Modder Wests	14 0*	14 3*	14 3*	14 9	14 9*	15 0*
Natal Navig. Colls.	24 0*	24 0*	—	23 0*	—	22 0*
New Boksburgs	1 6*	1 6*		1 6*	1 9†	—
New Eland Dmnds.	65 0†	65 0†	65 0†	65 0†	—	62 6†
New Era Cons.	8 0*	8 3*	8 0*	8 3*	9 0	8 9*
New Geduld Deeps	1 7*	1 7*	1 7*	1 7*	1 7*	1 7*
New Heriots	—	—	6 0*	5 6*	—	—
New Kleinfonteins	7 0*	7 6	7 3*	7 3*	7 0a	7 0*
New Modders.	66 3	68 6	68 6	68 3	69 6	69 6
New Unifieds	3 6*	—	—	—	—	—
Nourse Mines	8 0*	8 6*	8 6*	8 6*	8 9*	9 3*
New State Areas	27 0a	26 6b	26 6*	27 6	27 0b	27 0*
Pretoria Cements	107 0*	108 0a	108 0*	110 0*	112 0*	114 6
Princess Estates	—	0 7*	—	0 6	—	—
Rand Nucleus	1 0*	1 0*	1 2*	—	1 3*	1 3*
Randfontein Deeps	5 9*	6 0	5 6*	6 0	6 0	6 3
Randfontein Est.	16 9*	17 3*	18 0	18 0*	19 6	19 6*
Roberts Victors	13 6	13 6*	13 6*	—	12 6*	13 6*
Rooibergs	7 0*	8 0*	9 0†	7 6*	7 6	—
Roodepoort Uniteds.	—	—	—	—	1 0*	—
Ryan Nigels	3 0*	3 0*	—	—	4 0†	—
Rouxville Diamonds.	23 0	23 0*	24 6	24 6	24 6	25 0
Shebas	—	—	—	—	2 0†	—
Simmer Deeps	—	—	0 6†	0 6	0 6†	—
S.A. Breweries	—	—	—	30 0†	—	28 6*
S.A. Lands	4 0*	4 6	4 9	4 9	5 0	4 9*
Springs Mines.	36 0	—	39 0	38 9	39 6	39 6
Sub-Nigels	11 9*	12 6*	12 9	13 0*	13 3	12 9
Southern Van Ryns.	8 3*	—	—	8 0	8 0	7 0*
S.A. Townships	11 6*	12 6	12 6	12 6	12 6	12 6
S.A. Alkali	24 6	24 6	26 0	28 0	28 6	28 0*
Transvaal Silvers	41 3*	43 6*	43 9*	42 6*	42 6	40 0
Do. Options	20 0a	21 6	—	21 6	20 6a	20 6†
Trans. G.M. Est.	10 0*	10 9*	10 0*	—	—	13 0†
Union 5 per cent.	£97¾	£98	£97¾	£98	£97¾	£98¼
West Springs	15 1½	15 9	16 10½	16 3	16 6	16 3
Do. Options	1 9*	2 0	—	2 11	—	2 9
Van Ryn Deeps.	78 6	79 6	79 0*	81 0	80 6*	81 6
Village Deeps.	—	8 3*	—	—	8 9	8 6*
West Rand Cons.	—	3 6*	—			
Western Rand Est.	3 3*	4 0	3 6*	4 0	4 0	4 3
Witbank Colls.	—	45 0*	—	46 0*	50 0*	—
Witwatersrands	—	—	10 0*	—		10 0*
Wit. Deeps	—	—	6 0*	6 3*	8 6	9 0*
Wolhuters	3 2*	3 6	3 4*	3 9		3 9*
Zaaiplaats Tins	7 3	7 3	7 3*	7 4*	8 0	8 0

*Buyers. †Sellers. aOdd lots. bEx London.

Middlevlei Estate.

The Middlevlei Estate has entered into an agreement with Mr. George James Voges, whereby the Company grants the sole right to prospect for and mine, develop, extract and remove all or any manganese, iron oxide, ochre and pigment deposits on the Company's property for a period of 10 years, from the 1st day of October, 1919, with the right of renewal for a further period of 10 years, subject to certain conditions and the payment to the Company of 5/- per ton extracted, such royalty to be not less than £5 per month for the first nine months and not less than £25 per month thereafter.

Latest Company Registrations.

Heilbron Cheese Factory, Ltd., 38, Eloff Street, Johannesburg; capital, £2.000.
Oatlands, Ltd., 49a, Rustenburg Road, West Krugersdorp: capital, £100.
R Baird Langdon, Ltd., 62 63, National Bank Buildings, Simmonds Street, Johannesburg; capital, £100.
The Union Plantations, Ltd., 31-33, Permanent Buildings, Harrison Street, Johannesburg; capital, £3,000.
S.A. Flock Manufacturers, Ltd., 51b, Von Brandis Street, Johannesburg; capital, £8,200.
Composite Block Flooring Co., Ltd., 6, Rockey Street, Doornfontein, Johannesburg; capital, £500.
H. Peck & Co., Ltd., 285, Bree Street, Johannesburg: capital, £500.
South Rose Brickfields, Ltd., Provident Buildings, President Street, Johannesburg: capital, £2,000.
The African Beverage Co., Ltd., Kritzinger Avenue, Brakpan: capital, £10,000.
South African Motor and Cycle Importers, Ltd., 1, Market Avenue, corner Wilstead Street, Benoni; capital, £2,000.
Brakpan Property, Ltd., 15, South African Mutual Buildings, Harrison Street, Johannesburg: capital, £1,000.
The Carolina Motor Co., Ltd., Middel Street, Carolina, Transvaal; capital, £4,000.
The Johannesburg Country Club, Ltd., The Club House of The Country Club, at Auckland Park, Johannesburg; capital, £10,000.

CHANGES OF NAME.

Hegter East and Co., Ltd., to Michael Hegter and Co., Ltd.
The Standard Motor Works, Ltd., to The Standard Motor Co. of Africa, Ltd.
Lawrence, Riordan and Co., Ltd., to Riordan and Co., Ltd.

SPECIAL AND EXTRAORDINARY RESOLUTIONS.

Anglo-American Corporation of S.A., Ltd.; alteration of Articles.
Hoekberg Tins, Ltd.: destruction of books.
Mac-Mac Estates, Ltd.; bond.
Ebenezer Maxim and Son (Johannesburg), Ltd.: increase of capital.
Argus Printing and Publishing Co., Ltd.: alteration of Articles.
Lawrence Riordan and Co., Ltd.; change of name.
Standard Motor Company of Africa, Ltd.; alteration of objects.

NOTICES OF INCREASE OF CAPITAL.

Modderfontein East, Ltd., from £843.322 to £843,635.
Ullman Bros., Ltd., from £10.000 to £20,000.
Rand Co-operative Stores, Ltd. from £1.180 to £1,600.
Anglo-American Corporation of S.A., Ltd., £2,000,000 to £3,320,000.
Modderfontein East, Ltd., from £843.635 to £855.517.
Modderfontein East, Ltd., from £855,517 to £884,389.
Modderfontein East Ltd., from £884,389 to £903,378.
MacDonald, Forman and Co., Ltd., from £10,000 to £20,000.
A. Baker and Co., Ltd., from £5,250 to £15,250.
Orion Diamond Mining Co., Ltd., from £30,000 to £50,000.
Vines and Co., Ltd., from £30,000 to £100,000.

IN LIQUIDATION.

Rand Baking Co., Ltd.: capital, £7.000.
Pretoria Brass and Iron Foundry, Ltd., £1,000.
South African Share and Claim Exchange Association, Ltd., £6,000.
National Jewellery and Optical Co., Ltd.: capital, £1,000.
George Smith and Co., Ltd.: capital, £10,000.
Hedall Gorge Gold Mining Co., Ltd: capital, £1,000.

Glynn's Lydenburg, Ltd.

(Incorporated in the Transvaal.)

Declaration of Dividend No. 38.

A DIVIDEND of 2½ per cent (Sixpence per share), has been declared by the Board for the period ending 31st July, 1920, payable to Shareholders registered in the Books of the Company at the close of business on 31st JULY, 1920.

The Transfer Books will be closed from the 1st to 7th August, 1920, both days inclusive.

It is hoped to post the Warrants in payment of this Dividend on or about the 4th September, 1920.

Warrants despatched from the London Office to persons resident in the United Kingdom will be subject to a deduction of English Income Tax.

By Order of the Board,

Transvaal Consolidated Land and Exploration Co., Ltd.,
Secretaries.
Per C. L. READ.

Head Office: The Corner House,
Johannesburg, 21st July, 1920.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAIT TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Reduction in the Bank Exchange—Brighter Outlook—Price of Gold—Timber and Building Material—Iron and Steel—Oils, Colours and Wall Papers—Electrical Goods—Stray Notes.

The feature of the week has been the sudden collapse of the high bank exchange between here and London, and *vice versa*, so that now they are practically the same as in pre War days. This created somewhat of a scare in financial and commercial circles. Bringing down the exchanges was certainly a coincidence just in the middle of the extra important debates in Parliament on the subject. Now that the second reading has been passed by a substantial majority, the Bill is almost certain to go through, with no doubt several essential alterations towards finality and the discounting of commercial bills. These are matters of detail, and can well be left to Parliament, where there is practically a unanimous opinion that something must be done to bridge the hiatus as between too much paper money and the gold basis without too great a wrench in the commercial and industrial worlds. As regards the price of gold, which is now 107s. per ounce, why does everyone say that it must come down to normal? Australia made a price of 102s. for selling gold to manufacturers. This seems to be about its future bedrock price, because the basis for the ordinary standard of 84s. pure gold was calculated on the then cost of production. At that time ordinary labourers were getting, say, £1 per week and farm labourers about 12s. Now the latter get 60s., which in the long time to come may be reduced to 30s., therefore the new standard for gold, whatever the price, will not be less than four guineas. As regards a reduction in that price, when Mr. Gladstone reduced the interest on Consols from 3 to 2½ per cent. over a period of years, Lord Kelvin, a great authority on the subject, suggested a reduction in the standard price of gold, as money and bullion seemed altogether too plentiful. The five years' War, the finish of which was won on paper money, has made all the difference in the gold standard, which must be reached cautiously and with circumspection. After all, South Africa is only a pawn in the game of finance, and when all the world is tugging away at our three million pounds' worth of gold per month it will require a lot of care and acumen to keep it fairly intact. Fancy the collapse of the high bank exchanges simply because the managers saw that we should not lose our gold; and, after all, it was not surprising, seeing the Johannesburg banks gave a premium of £60 per £1,000 for people to send money to London, where it could also be invested to greater advantage. The normal exchange spells prosperity to the mines, the wool dealers, in fact to everyone who has South African produce to export. And when the Currency Bill is through the banks can stretch the elastic band of accommodation just a little, and they will not do it over-much until it is seen how all the new regulations work. The dramatic collapse of the exchange is a big, big object lesson, and will not be lost sight of in our future financial control.

TIMBER AND BUILDING MATERIALS.

Baltic timber is coming in more freely, but the price of deals for immediate delivery keeps up to 2s. 2d. per foot. Orders given in the usual way are quoted at 2s., floorings 10½d., ceilings 7¼d., scantlings 1s. 11d. per foot. Business is very slack, for various reasons. For instance, the farming community are holding back, because the produce market has fallen flat, and the tendency is for easier prices. For example, when butter was about 5s. per lb. it gave a great stimulus to the farming community, and it is extraordinary that in the middle of winter a good average butter is to be had for about 1s. 9d. Mealies also are nearer 20s. (22s.) than what was supposed to be the coming standard at 30s. The fact is that the farmers have been spoilt by high prices for produce, and they are feeling the effect of the easier conditions. Hence their apathy about purchasing building material. As far as the town is concerned the principal point is that the speculative builder has been eliminated through the building societies holding their hands, and only advancing money for people to build their own houses. Another reason for contractors not going full speed ahead is the scarcity of good skilled workmen; although there are many improvers in the market when employed they have to be put on the same standard as the best workmen. Then there is the Rent Bill altogether creating a nervous tendency, causing people to hold their hands and go easy for the time being. Burmah teak is worth 28s. 6d. wholesale and 31s. 6d. retail. Prime Rhodesian teak 10s. 6d., American oak 2s. 1d., Japanese oak 2s. 2d., Japanese ash 1s. 8d., poplar 2s. 2d.

IRON AND STEEL.

A shipment of steel plates has just arrived at the Coast, for which there is a keen demand, and 200 tons have already been sold to arrive. The market is practically bare, more especially of the smaller thicknesses, particularly 3/16 and 1/8, as well as ½in. in a lesser degree. Bar iron has a tendency to advance, based on the quotations of the imported prices for material now arriving at the Coast. Prices are also rising for bolts, nuts and spikes, the imported articles being 67s. 6d. per 100lbs., or 1s. 9d. per lb. Stocks of big pipes are coming forward, but no small stocks at present. There is a lot of second-hand piping offering from mines closing down, which is affecting business in new stocks; therefore in this line things have been slack during the week, but in Transvaal iron and steel business generally has been brisk. It must not be overlooked that the advance of 33 1-3 per cent. in railway rates in Britain will materially affect prices here and to arrive. Wire nails 52s. 6d. to 55s., imported mild steel 37s. 6d. to 40s., drill steel 7½d. per lb., hollow 1s. to 1s. 3d.; shafting, 7½d. to 8d.; wheelbarrows, 75s. each; picks, 3lbs. 37s. 6d. per dozen, 4lbs. 45s., 5lbs. 54s., 6lbs. 62s. 6d., 7lbs. 72s. 6d. to 75s. A hardware merchant states that things are very quiet on the exchange, but thinks there will be an improvement when the effects of the new bank exchange rates are felt. The mines then will probably revert to their previous practice of buying

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

uqantities of stores, instead of as at present only purchasing from hand to mouth. Naturally the mines could not be blamed for not over-purchasing, considering the apparently unstable exchange rates. An American representative states that iron and steel prices are very firm, but deliveries are slow, and much interrupted owing to railway and longshore strikes and other causes. A big steel company is now taking orders for delivery from six to nine months. All manufacturers of mechanical rubber goods containing cotton show advances of from 7½ to 10 per cent.

OILS AND COLOURS, WALLPAPER AND GLASS.

Turpentine: A distributing house says that turpentine is unobtainable, and they cannot give a quotation, as they have none in stock. They don't know the position themselves, as prices for an occasional quantity to be picked up are changing every hour of the day. The nominal quotations are £10 10s. spot delivery and about £8 8s. to arrive. They are completely sold out of turpentine substitutes, and cannot get any more at present. Linseed oil has advanced 1s. a gallon in London, but no alteration has occurred here, being 14s. for 7lb. tins. The market in white lead is still unsettled, and the local quotation is 110s. per 100lb. kegs, 1s. 3d. per lb. for a small lot. Wallpaper: Manufacturers report there is still a great shortage of raw material, and all indents are being delayed. The position therefore is getting acute, as orders placed in London in August, 1919, are not yet delivered. The plate-glass position is very unsatisfactory, and the firm in question have sold out their immediate supplies, and those due to arrive during the next few months. Business in the decorating and furbishing line is much quieter, as property owners are withholding orders until more experience of the Rent Bill is forthcoming.

ELECTRICAL GOODS.

Business in this section is very slack, both in town and country, and prices remain much about the same, with a tendency to go lower. Ceiling roses and adaptors, although by no means plentiful, can still be obtained in small quantities. Electrical materials are coming in pretty freely, and according to general reports good stocks are on the way and shortly expected. No big orders for stocks are now being received, as was the case about two months ago. One dealer in a large way of business reported that a Kimberley man was here this week testing the market as to prices and quantities on hand, but as far as he knew he had contented himself with feeling the market, and did not purchase much stuff here. No big contracts are going just now, and dealers are principally busy in sales of goods for repairs. However, on the whole electrical goods dealers are not much perturbed over the present slackness, which they say occurs periodically, and are looking forward to a general improvement in the near future.

STRAY NOTES.

The endeavours of the American Government to dissolve the United States Steel Corporation have again been evidenced by a recent effort to do away with the Steel Corporation as an unlawful "combination of combinations" in restraint of competition within the meaning of the Anti-Trust Act The argument of the Attorney-General was that, directly or indirectly, approximately 180 independent concerns were brought under the business control of the Steel Corporation, thereby giving it not only the assets and business of that number of producers, but the advantage of their elimination from the field of competition. The control thus acquired, measured by the amount of production, extended in some instances from 80 to 95 per cent. of the entire output of the country. It was urged that the company was not able to achieve monopoly alone, but did so by persuading competitors to engage in monopoly through pools, associations, etc. The fact that it could persuade its competitors to enter into these illegal combinations was a most pregnant evidence of power—whether the latest attempt on the part of the American Government to dissolve the Steel Corporation will result in success or in the failure which has hitherto marked these actions remains to be seen.

Frank Southwell's Options, Lead, Silver, Diamonds, Oil Shales and Coal: We understand that in connection with the above concern an influential company has been floated in London, with a very large capital, to thoroughly exploit the above propositions. Their coal fields, which are situated in Natal, are very extensive. The diamond mine is in the Free State, and has been known to one of the oldest pioneers here for the past 35 years, who has only now succeeded in bringing to fruition the results of so many years' expense, time, etc.

Mr. Harry H. Jordan, our late respected magistrate, has been appointed solicitor to the company, and an influential local board of directors has been formed. Full particulars concerning this flotation are expected shortly.

CENTRAL MINING CORPORATION.

The Chairman (Sir Lionel Phillips) made a reviewing and comprehensive speech in London at the annual meeting of the Central Mining and Investment Corporation. There are some big figures. For example, £810,000 was transferred to the Appropriation Account against £397,000, which allowed for a dividend of 16 per cent. gross for 1919. £10,000 was contributed to our University, and £5,000 to other deserving public institutions, etc. A significant remark was made that the company had been specially fortunate during 1919, therefore shareholders must not expect concert pitch on every occasion, but the outlook was encouraging. As regards the rates of exchange it was remarked that the high discounts and premiums had been the cause of hastening the closing down of some of the low grade mines. The return to normal rates may yet be in time to save several mines. With the exception of the Durban Deep all the company's mines were doing well, the majority excellently so. However, the special feature of the speech was the future, in connection with the interests secured in oil ventures in Trinidad Leaseholds, Limited. The company has ample resources, and it is anticipated that the present production of 15,000 tons monthly will gradually be increased. Encouraged by the success which has so far atended the first investment, they have now entered Venezula, and formed a company to acquire a concession over 2,000 square miles. Having in view the ever-increasing demand for oil, the Central Company has embarked on a policy of expansion. This is commendable, because by spreading investments over a wider field the better the chance of continuing to pay these handsome dividends over a big capital.

Box 3807. **Tel. 5892.**

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent

R. SYMONS

WANTED.

Punching and Shearing Machine. Must be capable of cutting 6in. x 1in. flat bars. Give full particulars, makers name and condition.

FOR SALE.

Second hand Felloe Shaping Machine. Maker, Sagar & Co., Halifax. 6in. deep knives suitable for all classes of irregular and circular moulding. £40.

Also second hand
MASS 2 ton
— AND —
ALBION 1 ton
MOTOR LORRIES
FOR SALE.

FOR SALE.

One second hand band saw. Ibbotson Bros. Sheffield make. Will cut 16ins. deep, in good order with saws complete, £200.

FOR SALE.

Rounding, Chamfering and Cornering Machine, for shafts, poles, felloes and general wagon and carriage parts, £40

BUFFALO WAGON & CARRIAGE WORKS,
KING WILLIAM'S TOWN.

P.O. Box 82. Telegrams: "BUFFALO."

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries

VOL. XXIX., PART II. JULY 31, 1920. No. 1505.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913**. P.O. Boxes **963** and **4573**.

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1½d. All other parts, 2½d.

CONTENTS.

PAGE

Notes and News 509

Topics of the Week:

King Coal and Master Iron 511
The Outlook on the Far East Rand 513
Progress of Transvaal Silver and Base Metals 514
The Southern Half of the Far East Rand and Particularly the Property of the Southern Van Ryn Co. 517
The Week in the Sharemarket 521

Special Coal, Steel and Iron Trades Supplement:

Establishment of Iron and Steel Industries in South Africa 523
Iron Resources of the Union 527
Griqualand West Iron Ores 533
Union Steel Corporation of S.A., Ltd. 534
South African Iron and Steel Corporation 539
Newcastle Iron and Steel, Ltd. 547
Dunswart Iron and Steel Works 552
South Africa's Expanding Coal Output 558
A Tribute to Iron 561
The Value of Coal Tar Disinfectants in Mine Disinfection 563

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 564
South African Institution of Engineers, Valedictory Address 566
Steel Works Electrification 568

Notes and News.

The Currency Bill.

The Currency Bill has duly passed through the Committee Stage, and is now on its way to the Senate. Every clause in the Bill provoked a vigorous discussion in the Assembly, but there have been no radical alterations, except perhaps that the 30th June, 1923, has been fixed by the Minister as the date when the section dealing with the convertibility of the gold certificates shall expire, unless otherwise decided by Parliament.

* * * *

Railway Improvements.

" It is pleasing to know that a commencement has at last been made to rebuild the passenger station of Johannesburg," said Mr. Chappell at last week's meeting of the Johannesburg Chamber of Commerce. " A sum of £250,000 has been placed upon the estimates, and £80,000 will be spent this year. So far this is gratifying, and we are in communication with the Administration so as to arrange to have an opportunity of seeing in detail the plans and proposals."

* * * *

British Industrial Films.

An important exhibition of cinema films was held at the Bijou at the end of last week and beginning of this. Among the most interesting pictures shown were those of the works of Sir W. G. Armstrong, Whitworth & Co., Ltd., and Messrs. Hadfields, Ltd, and the whole display reflected great credit on the enterprise of the promoters.

* * * *

Vryheid Railway, Coal and Iron Co., Ltd.

At the last annual meeting, the chairman explained that negotiations were proceeding with the Government of South Africa for the sale of the Railway by the Company, and the revision of the contract for the supply of coal to the Government. These negotiations resulted in an agreement, and on the 19th inst. the necessary Bill in Parliament confirming the arrangement, with certain modifications, was passed after considerable debate. The annual meeting will be held as soon as the necessary accounts are received, when the Chairman hopes to be in a position to make a full statement upon the changed position. In the meantime, with a view to securing an increased output, the Board feels justified in going on with certain additions and improvements to the Colliery, which have been held up pending these negotiations.

* * * *

Durban Engineers' Strike.

Between 400 and 500 men engaged in the engineering industry and members of the Amalgamated Engineering Union, formerly known as the Amalgamated Society of Engineers, went on strike at Durban on July 24 for an increase of wages, the minimum required being 4s. per hour for artisans for a 44-hour week and 3s. 6d. for rivetters; also 12 days' annual holiday leave on full pay and full pay for Christmas Day, May Day and Good Friday holidays. The Master Engineers' Association offered 3s. 6d. per hour to the artisans and 3s. per hour to the rivetters. The offer of the masters was discussed at a meeting of the A.E.U. earlier in the week, when it was decided to strike unless the demands were granted by noon on Saturday. This fact was communicated to the employers, who signified their willingness to submit the matter in dispute to independent arbitration. It was pointed out that the offer of 3s. 6d. was the highest in the Union, being equivalent to 3s. 8d. per hour in Johannesburg, the rate being 3s. 6d. per hour for a 48-hours week. The Association also put forward the suggestion of a profit-sharing scheme and of the formation of a Joint Board. On the latter point the men expressed their willingness for this after the present negotiations have concluded. The reply from the masters was discussed at a meeting of the men, when it was decided to declare a strike forthwith. The men not affected are those employed on the Railway and at the Electric Power Station, though it has been intimated that if much pressure is exercised by the Association the men in the Power Station may be called out as well.

Miners from Overseas.

Answering Mr. Feetham in the House of Assembly this week, the Minister of Mines stated that 51 miners from overseas had been rejected during the last twelve months by the Miners' Phthisis Bureau as unfit for work on the scheduled mines. Of this number 27 were from England, 10 from Scotland, 10 from Wales and 1 from other countries. The Government, he continued, had not through the High Commissioner's office or otherwise warned miners intending to emigrate to the Rand as to the nature of the medical examination which they would be required to pass before obtaining employment on such mines. But the matter was brought to the notice of the Miners' Union in Johannesburg in February last. As a result the Miners' Union had circularised miners' organisations in England and Cornwall, and the Cornish Association also dealt with the matter in April of this year.

* * * *

First Aid at the Crown Mines.

The sixth annual ambulance competition was held at No. 3 shaft, Crown Mines on Sunday in the presence of a large number of spectators, amongst whom were Messrs. A. J. Walton (general manager), T. Little and A. V. Lange (joint managers), P. L. Edwards, S. K. McKenzie, J. Becker and Miss Tarn (Matron, Native Hospital). The competition was held under the auspices of the South African Red Cross Society, and seven teams competed. In previous years there was a separate competition for surface and underground sections, but in the recent tests all were carried out on the surface. The prize money, generously donated by the management, amounted to £60, divided into a first prize of £30, second £20, and third £10. All the teams had to undergo an oral test, which was conducted by Dr. R. W. B. Gibson, and the adjudicators in the practical test were Drs. L. G, Irvine and C. C. Murray, and Mr. A. M. Anderson representing the Rand Mutual Assurance Company. Mr. D. Rowland acted as time-keeper, and Mr. W. H. Smith, chief ambulance officer, was in charge of the proceedings. The winning team consisted of Messrs. E. T. King (captain), W. Maher, K. F. Shreeve, E. E. Titterton, and N. J. Jansen.

* * * *

Professor Schwartz's Scheme.

In the Senate last week, Senator Tucker moved: "That in view of the urgency of conserving the water supplies of the Union, etc., the Government should take in earnest consideration the advisability of the appointment of competent engineers to investigate and report upon the feasibility of diverting, conserving and distributing flood waters as suggested by Professor Schwartz or otherwise." He said he thought Professor Schwartz had made out a very good case, and with a view to the necessity of conserving the water supplies and the importance of the matter to the Union, we should investigate Professor Schwartz's suggestions. Some people thought him a dreamer, but there was a good deal in what he said. We ought not to wait and see what other nations are doing in the matter. General Smuts, in reply, contended that too many Governments were connected with the matter, as the rivers which were proposed to be diverted were entirely beyond the present jurisdiction of the Union Government. He was afraid of attempting anything which might prove to be beyond human solution. He in no way doubted Professor Schwartz's suggestions, and he himself sometimes at night dreamt dreams. There was no doubt that the Kala'hari was once fertile, but rivers had been diverted east and west which formerly ran south. Earthquakes had done much to change the geology of the desert. In years past South Africa had not been so peaceful, geologically, as now. He thought the matter had better be left to the Government, and he asked the member to withdraw his motion.

* * * *

Lardine, Ltd.

Lardine, Ltd., has declared its second dividend of 7½ per cent., or 1s. 6d. per share. This company is engaged in a genuine local industry for the manufacture of food products, including the now well-known Lardine so extensively used for cooking purposes as a substitute for butter, also bacon, hams, pure lard, etc., all of which are turned out at the company's works at Germiston North. These works adjoin the cold storage premises of Messrs. Young & Young, Ltd., who originally introduced Lardine on the Market, and the company is thereby in a unique position for the storage of the large quantity of raw materials required for their large and rapidly expanding business. The company was registered in the Transvaal in December last with an issued capital of £40,000 in fully paid up £1 shares, all of which is working capital and there are no vendors or reserve shares. The company has already declared two dividends of 7½ per cent. each. The Directors are Mr. George Sacks, Chairman; Mr. N. J. Swanepoel, works manager; Mr. S. A. van Lingen and Mr. J. M. Calderwood. The favourable conditions under which this company has been launched seems to justify their confidence of a successful future.

* * * *

The Petrol Position.

In addressing the Johannesburg Chamber of Commerce last week, Mr. Chappell dealt with the question of the shortage of petrol. "This is a commodity," he said, "which is necessary in a minor degree only for purposes of pleasure, but largely for industrial and transport purposes. There is a probability that the action of the Government in fixing the maximum price at which this commodity may be sold, has resulted in supplies being diverted to other parts of the world, and is another instance of the evils of Government interference with the ordinary course of trade. We are in communication with the companies who supply this country, and the information generally we have is that the situation may be eased to some extent, but there does not appear to be much hope for the present that adequate quantities will be forthcoming to supply the essential requirements of South Africa. It is becoming increasingly clear that the soundest method to bring about a better condition of affairs, and to ensure a full supply of necessaries is to remove restrictions wherever possible, and thus allow the improving world conditions to have full effect here by means of active competition among importers and distributors."

* * * *

Important Vanadium and Lead Flotation.

An important flotation is announced this week under the name of the African Vanadium and Lead Mines, Ltd. The issued capital is £160,000 of which the vendors take £105,000 in shares and £5,000 in cash. An issue of 55,000 is now offered to the public of which 25,000 is guaranteed. The directors are all well known business and professional men and the venture has everything to recommend it.

The chief object of the Company is to take over and continue the working of the Doornhoek vanadium and lead mine, and for this purpose to supplement and improve the existing plant for the production of high grade lead and vanadium concentrates for shipment oversea or local realisation, and to acquire the existing stocks of ore at grass, and ore in mine ready for hauling. The operations at the mine have hitherto been confined to the recovery of galena nodules containing 80 per cent. of lead and from 6 ozs. upwards of silver per ton, which occur with great frequency. In the course of recovering these nodules large quantities of lead ore finely disseminated in the gauge were recovered, and in the absence of any means of concentration were dumped on the surface. The masses thus dumped and available for immediate treatment is approximately 100,000 tons. Samples of these dumps taken by Dr. Merensky (who has reported most favourably on the property) show values varying from 5·83 per cent. to 23·35 per cent. of lead after removing all visible galena. The gross value in England of the lead contents of the dumps, which it is estimated contain say 4,000 tons of metal, is at present prices about £120,000.

Vanadic oxide is a product for which there is a large and increasing demand in the manufacture of the highest grade steels. To show the magnitude of the market for vanadium it may be mentioned that the Directors have received an offer from a Sheffield firm of steel manufacturers which is willing to take 2,000 tons of the Company's crude product annually for five years at £60 per ton. Dr. Merensky records indications at various points in the mine and in the outside workings, but makes particular reference to a strong body of vanadinite in which by only a small amount of development some 7,500 tons have been exposed, and which showed an average of some four per cent. of Vanadic oxide. The tonnage developed has, during the last few weeks been increased to 10,000. A primitive test by panning made by Dr. Merensky has resulted in a concentrate giving an assay of 11·13 per cent. of vanadic oxide. As will be sen from the report of the Government Geologists, recently quoted in our columns, a product of 11·7 to 16 per cent. was obtained by simple treatment of jigs and tables.

Experiments are being conducted as a result of which it is hoped that a much richer and therefore more vaulable concentrate will be obtained. Recent quotations from America give the value of a 10 per cent. concentrate as £40 per ton, and of a 16 per cent. concentrate £75 per ton. The 10,000 tons of vanadium ore developed ought to yield about 2,000 tons of high grade concentrates, representing a value of about £110,000, the major portion of which amount would be on the side of profit. So far reference has only been made to the galena nodules which occur with great frequency in the manganese gauge, and which are immediately marketable to the lead contents of the dumps and to the vanadinite deposits. These are all of great value, but one of the chief values of the mine rests in the enormous quantity of fine lead ores with which the whole zone is impregnated, the values varying from 5 to 23 per cent. according to Dr. Merensky's report. This relates not only to the open quarry, but also the outside workings, the latter embracing and partially proving an additional area nearly four times greater than the existing mine. Its high metallic values is only one of the many advantages which the Doornhoek Mine possesses. Next in importance comes the fact that there are no mining problems or difficulties to be encountered. Mining will consist of quarrying in soft earth and shovelling into trucks connected with incline haulages. Dr. Merensky is of opinion that mining costs should not exceed 1s. 6d per ton. Other advantages are that no outlay on shafts and development is necessary for years to come, and that partial production, *i.e.*, the marketing of the galena nodules and graded vanadium ore can be continued from the date of the formation of the Company. This product, it should be mentioned, is now being sold in fair quantities by the present owners of the mine. Finally, the circumstances that the mine is a huge zone of fissures, the walls of which are as yet undefined (as stated by Dr. Merensky), is considered of the greatest importance. The following is the final paragraph of Dr. Merensky's report:—" Having regard to all these facts and considerations, the Doornhoek Lead Mine must be regarded as a sound and attractive mining proposition, with great possibilities of expansion."

The mine is situated 17 miles south east of Zeerust, which is at present the nearest railway station. A line between Zeerust and Lichtenburg has, however, been projected, which will pass within close proximity (about 3½ miles) to Doornhoek. Water of suitable quality has been encountered in the lower workings, and sufficient quantities for concentration and other purposes can be readily obtained by boring.

The promoters are confident that the exploitation of the property will prove a sound basic industry of singular value and importance, not only to the shareholders, but to the country generally.

* * * *

Crown Mines Position.

The quarterly report of the Crown Mines, Ltd., to June 30th states that in arriving at the profit results the value of the gold output has been based on the following charges: April, £5 2s. 6d. less 7s. 6d. per fine oz. for realisation charges; May, £5 5s., less 8s. 9d. per fine oz. for realisation charges; June, £5 2s. 6d., less 7s. per fine oz. for realisation charges. The realisation charges fluctuate according to exchange rate charged by the banks for transmitting gold proceeds to South Africa. The tonnage output for the period increased 13,000 tons, but the yield was 1s. 9d. per ton lower owing to the reduced premium on gold, and higher realisation charges. In consequence, the working profit was considerably lower than for the preceding quarter, viz., £171,994 as compared with £231,635. Development operations were well maintained with satisfactory disclosures of reef. The main cross-cuts from No. 15 and No. 7 shafts, on the horizon of the 19th level, were successfully connected. The native labour position showed some improvement over the preceding quarter.

TOPICS OF THE WEEK.

KING COAL AND MASTER IRON.

Rudyard Kipling has aptly written of the metals that " Iron—cold iron—is master of them all," and the briefest of inquiries into the industrial history of the nations amply confirms that declaration. In every big country population and prosperity stand almost in direct ratio to the existence and development of coal and iron resources. Yet in the Union of South Africa it is only now that any practical appreciation of this basic fact is to be observed. It is questionable whether there is any other country in the world that possesses greater combined resources of coal and iron than South Africa. These two forms of mineral wealth are complementary to each other. Neither can rise to real heights of production and prosperity without the other. It needs no very prophetic vision to see that in the years to come and long after the gold mines of the Rand have been exhausted and the production of the diamond mines has waned the Union of South Africa will have its mineral prosperity based on the more stable fabric of coal and iron. " King Coal " and " Master Iron " are going to rule when the last of the deeps has been gutted, and long before that, long before the wane of the Witwatersrand, South Africa will be a really great manufacturing country making for her own use the thousand and one articles for mine and farm and railway and dockyard which she now imports. Further than that we are going to export iron and steel goods, and with our vast resources of coal and iron and water, our cheap labour and favourable geographical situation, particularly in regard to the great markets of South America and the East, there are few countries—and certainly none in the Southern Hemisphere—which can compete with us in respect of the establishment of an iron and steel industry. These are not mere phantasies, but sober facts, and the astonishing thing is that it is only quite recently that South Africa has seriously been considered as a prospective iron and steel producing country. In the special coal number of the S.A. Mining & Engineering Journal issued at the beginning of the year the magnitude of our coal asset was clearly defined, and it is to be noted that since that issue was published there has been a very substantial growth in the coal trade, particularly in the directions of bunkering and export. In this week's coal, iron and steel supplement the recent expansion of the South African coal trade is exhibited by statistics and commented on in a special article. But the greater portion of this publication is devoted to the present substantial status and magnificent prospects of our embryonic iron and steel industry. The characters and extent of the country's principal iron occurrences are examined at length, and as a result of the investigations of a special representative we are enabled to give the latest information as to the four principal iron and steel enterprises of the Union at Vereeniging, at Pretoria, at Newcastle and at Dunswart. Much useful technical information accompanies these articles, and a large number of photographs specially taken for this supplement will enable our readers to visualise the amount of work already achieved or now in hand in connection with the establishment of a large South African iron and steel industry. The amount of iron actually produced from ores in South Africa during recent times has been insignificant. So far local iron workers have mainly concerned themselves with the re-smelting of scrap, a highly commendable enterprise, which greatly assisted the country to carry on during the War period. But it will be clear to the reader of this supplement that South Africa is now standing on the very brink of the production of iron and steel from her own iron ore resources. In a few months' time actual output on a large scale will commence, and it is as certain as to-morrow's daybreak that within the next few years we are going to witness a tremendous development of the iron and steel trades in this country. We are in fact just commencing the joint reign of coal and iron, those two monarchs of industry, which have made other nations truly great and prosperous and which within the next quarter of a century or even less will revolutionise the history of the Union.

SIEMENS BROTHERS

& CO., LIMITED

RUBBER AND PAPER CABLES.
TELEGRAPH AND TELEPHONE CABLES.
FLEXIBLES.
"STANNOS" WIRES.
ENAMELLED WIRES.
JOINT BOXES.
COMPOUNDS.
TAPES.
CABLE APPLIANCES.
ACCESSORIES.
EBONITE
TELEGRAPHS.
TELEPHONES.
RAILWAY SIGNALLING.
SHIP SIGNALLING.
MINE AND POWER STATION SIGNALLING.
FIRE ALARMS.
LINE MATERIAL.
TUBULAR POLES.
LATTICE POLES.
INSULATORS.
LINE TOOLS.
FLUID CELLS.
DRY CELLS.
BATTERY CARBONS.

SIEMENS BROTHERS & CO., Limited, Woolwich, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE OUTLOOK ON THE FAR EAST RAND.

A General Review—What an Extra Ten Shillings an Ounce Means—Springs, Modder and Van Ryn Prospects.

In common with all other gold propositions the mines of the Far East Rand, although easily the richest auriferous properties in the world, have recently passed through an acute crisis. Abnormally high working costs, coupled with excessive gold realisation charges, and a decline in the selling price of the product, have all helped greatly to curtail profits. But over and above this, development exposures for the first six months of the year have been disappointing, and particularly so at certain properties.

The report issued by the Inspector of Mining Leases in respect of operations for the first quarter of the year made it clear that although values and widths had in some instances improved, percentage of payability was generally less at the important properties situated to the east of Benoni, in which the Government hold a direct interest, viz., Government Areas, Brakpan, Springs, Modder Easts and West Springs. It is, therefore, most encouraging to learn that concurrently with the decline in the Bank rate to normal and an advance in the price of gold to 108s. an ounce, reef exposures at the majority of Far East Rand mines are showing an improvement again.

COINCIDENCE OF POLICY.

Whether this happy conjunction of circumstances is a mere coincidence or whether it is a result of policy is another question. The outstanding fact is, however, that headings at various properties are showing more inch dwts. and a lesser amount of unprofitable reef, with a consequent betterment of that most essential factor, percentage of payability. One hears that this is particularly the case in regard to the two Springs propositions—Springs and West Springs.

THE SPRINGS GROUP.

Springs Mines, which had a meteoric flight to fortune nearly three years ago, has been a decidedly disappointing venture of recent months and it is common knowledge that development in its No. 3 shaft section during the past month or two has given very poor results. Similarly the sister proposition, West Springs, which is being developed from Springs, has so far been a proposition of rather disappointing values. Readers will doubtless recall the fact disclosed in Mr. Twiddy's report for the first quarter of this year that only 4 per cent. of that period's development in West Springs was payable. It was, however, rightly pointed out by the Directors of the company that it would be quite unfair to judge West Springs on the slender evidence of the small amount of footage achieved to date. Both Springs and West Springs have enormous unexploited areas of great speculative and potential value and the fact that at both properties the development position is now looking better encourages one in the belief that the unproven claims of these large mines contain many millions of tons which, sooner or later will be worked at a profit. This remark applies also in some degree to the huge Daggafontein venture with its reef trend towards the Sub Nigel, which latter property it is satisfactory to hear has also shown signs of improving development within the past few days. The Modder East, too, is looking better again from a development point of view and this improvement will, it is anticipated, be reflected in the profits which are now being earned at the Apex Mill.

THE MODDER QUARTETTE.

As to the four big Modders, "New," "B." "Govt.," and "Deep," their position has, of course, vastly improved on account of the rise in the price of gold and the drop in the exchange rate, which means, roughly, an increase of ten shillings per oz. in the revenue of these mines and therefore (assuming there is no further advance in working costs) to their profits. What this means to this quartette of producers may be realised from the fact that in June the output of the "big Modders" was as under:

New Modder	43,335 ozs.
Modder Govt. Areas	50,603 ozs.
Modder B.	26,101 ozs.
Modder Deep	22,147 ozs.
Total	142,186 ozs.

In other words, their earning capacity has been increased by £72,000 per month. Last month the New Modder registered a decline of 786 ozs., but the general position of affairs at this property is very satisfactory and the drop in the exchange rate, coupled with an improvement in the price of gold, means an additional quarter of a million per annum to this company's profits. Govt. Areas, with an output of over fifty thousand fine ozs., was the Rand's and the world's leading producer last month. The position of this property, with its huge aggregate of ore reserves, seems to be unassailable, and it is scarcely to be wondered at that there have recently been substantial exchanges of shareholdings by large investors into this company.

Modder B. is looking well. The new shafts are progressing in depth and an improvement in profits up to a hundred per cent. earning again is anticipated.

At the Modder Deep profits of 12½ per cent. per month or even more on the half million capital are being earned.

As to other Far East Rand properties the Van Ryn Deep development in the Eastern Section is remarkably good and more attention is now being devoted to the comparatively speculative Western areas. Recent profit earnings of this company could easily be maintained without any relief in respect of exchange or advance in price of gold, and astute investors regard this stock as possibly the best buy on the market.

The position out beyond Benoni may in fact be described as very encouraging at the present moment and unless anything unforeseen happens the dividend harvest for the second portion of the current year will be substantially greater than that of the first half.

OXY-ACETYLENE
WELDING AND CUTTING PLANT MANUFACTURERS.
Complete Equipments.
McGOWAN, WILD & CO.,
"ECONOMIC" WELDING BLOWPIPE, the most Efficient and Economical on the market.
Suppliers to the Trade of all Accessories for Welding and Cutting.
OXYGEN-PRESSURE-REGULATORS, CAST-IRON WELDING STICKS, FLUXES for Cast-Iron, ALUMINIUM, BRASS, COPPER, PURIFYING MATERIAL, TUBING, Etc.
Stockists : JENKINS & CO., Greenmarket Square, CAPE TOWN.
Sole Representotives for South Africa :—
MACLACHLAN & CO.
ATHENIAN CHAMBERS, SHORTMARKET ST., CAPE TOWN.

SPECIAL MACHINERY, TOOLS, APPLIANCES and EQUIPMENT
MANUFACTURED TO CUSTOMERS' REQUIREMENTS.
Accuracy and quick delivery guaranteed.
Enfield Machine & Auto Tool Co., Ltd.,
ENFIELD, MIDDLESEX, ENGLAND.

PROGRESS OF TRANSVAAL SILVER AND BASE METALS.

Vigorous Development Policy on Dwarsfontein Lode—Shaft Sinking, Sampling and Dewatering—Valuable Extension of Old Silver Mines Acquired—Compact Proved Productive Area—Prospecting Operations on Other Lodes.

An encouraging progress report was issued by the Transvaal Silver and Base Metals, Ltd., this week. The report deals with the excellent progress made up to the end of June, and is produced below. Since the report was prepared—in fact, during the last few days—an important deal has been concluded by the company. What is known as the Ferguson Lease portion of the farm Dwarsfontein has been acquired from Mr. J. B. Ferguson, with all workings and plant, for a cash payment of £15,000. These workings are on the strike of the lode worked in the old Transvaal Silver Mines, and have been opened up on either side of the latter to considerable distances, and ore actually exported therefrom at a good profit. As the plan reproduced shows, the Ferguson ground extends from the boundary of the old Silver Mines 3,600 feet to the west and 800 feet to the east. Of these distances, the lode already has been proved on a strike of 600 feet west and 400 feet east. This is in addition to the 1,800 feet of strike opened up by the first level of the old Transvaal Silver Mines.

The following is an estimate of the probable ore contents of the ground purchased from Mr. Ferguson, between the proved portion of the outcrop of the lode and the plane of the third or lowest level of the old Transvaal Silver Mines:—

Above first level of the old Silver Mines ...	12,000 tons.
West of old Silver Mines	45,000 tons.
East of old Silver Mines...	100,000 tons.
Total	157,000 tons.

This ore is either available for stoping as soon as the workings of the old mine are unwatered, which should be within the next few months, or can be developed rapidly by extending the old Silver Mine drives.

A Compact Area.

A glance at the plan shows that the old Silver Mines property, including the Ferguson Lease, now constitutes a compact area of rich ore with considerable possibilities of extension. The plan hardly does justice to it, however, since the distances are so large that the actual, proved extent of the strike in feet seems dwarfed. The new acquisition may also prove valuable because of the probable extension into it of the lode from the Shimwell property on the north. Surface indications show that such is likely to be the case. The company is certainly to be congratulated on its deal, which, apart altogether from its prospects in other portions of the extensive areas controlled, would seem to make its future assured. An idea of what is being done on the other properties of the company may be gathered from the following from the report to June 30, issued this week:—

Dwarsfontein No. 145.

No. 1 shaft (old Transvaal Silver Mines shaft): Work in connection with the recovery of this shaft has been carried on with all possible rapidity, and at the present time the upper portion of the shaft has been cleared of *débris* and the workings have been unwatered to a depth of 40 feet. At this point the old shaft timber is intact, and it now remains only to conplete the timber to surface when unwatering operations of the remainder of the mine will be proceeded with. In the meantime, the new surface equipment, which consists of two 100 h.p. boilers, a steam winding engine, air compressor, workshops, lighting engine and plant is well in hand, and should be completed by the end of August. As the mine is unwatered careful and systematic sampling of the unworked blocks of ground will be proceeded with, and development work will be put in hand. It is estimated that there are, approximately, 50,000 tons of ore standing above the old levels in this property, of which, however, details regarding value are not yet known with any degree of accuracy.

No. 2 shaft (new strike): In view of the very rich values which were obtained from the winzes referred to by the chairman at the statutory meeting, it was decided to sink a new three-compartment shaft at this point in order to open up this highly promising strike without delay. At the present time the initial difficulties of sinking through broken ground have been overcome, and the shaft is in solid formation at a depth of 80 feet. Sinking will be continued as rapidly as possible, and at a depth of 130 feet the first crosscut to the lode will be driven. The equipment of the shaft, which consists of a 40 feet headgear, steam winding engine, boiler plant, and a steam air compressor plant, has been erected and is in use. The lode has been traced for a distance of approximately 2,000 feet on the strike, and three winzes are being sunk from surface at the present time. These winzes have reached depths at 30 feet, 11 feet, and 32 feet respectively, the values in each case being abnormally high, while the lode itself shows signs of widening out to some extent in depth. A portion of the ore from the winzes has been hand-picked, and a parcel of 21 tons has been shipped to London for experimental purposes. The assay value of this ore was 75 per cent. lead, and 104 ozs. bar silver, per ton of 2,240 lbs. At present prices, the value of this ore is in the neighbourhood of £47 per ton.

La Grange Lode.

Surface prospecting has traced the strike of the lode for a distance of 3,000 feet, and, at the present time, diamond-drilling has been commenced to prove the value of the lode below the level of the vadose waters.

Spies Lode.

Surface prospecting on the outcrop of this lode has proved the strike for a distance of 2,700 feet. Diamond-drilling, to prove the value of the mineral contents below the level of the vadose waters will be carried out as soon as the drill can be released for this purpose.

Dumps.

The various dumps on the property are being carefully sampled, and it is evident that much valuable ore will be recovered from this source. An old "seconds" dump, which consists of mine ore from which the more valuable contents had been hand-picked in earlier days by the Transvaal Silver Mines, contains, approximately, 3,000 tons of ore, the sampled value of which is 12·5 per cent. lead, and 15 ozs. bar silver. At to-day's metal prices this dump has a gross value of nearly £21,000. All other dumps on the property are being examined and sampled.

Brakfontein No. 219.

Surface prospecting in the vicinity of the old Brakfontein Shaft has proved the strike of the lode over a distance of some 4,000 feet. Rich galena has been met with in the course of this work. Diamond-drilling, to prove the value of the lode in depth, will be carried out as soon as the work now in hand on Dwarsfontein has been completed.

Rondevlei No. 217.

Oudeszwaans Kraal No. 537.

Witpoort No. 408.

Prospecting on all these farms is being carried out, in order to prove the length on the strike, and dip of the several powerful lodes, which are traceable at the surface.

Mining Timber.

In order to ensure an adequate supply of mining timber at a low cost, an extensive blue gum plantation on the farm Rondevlei, which is adjacent to the Dwarsfontein and Brakfontein workings, has been acquired. This plantation should supply the mine with timber for many years to come.

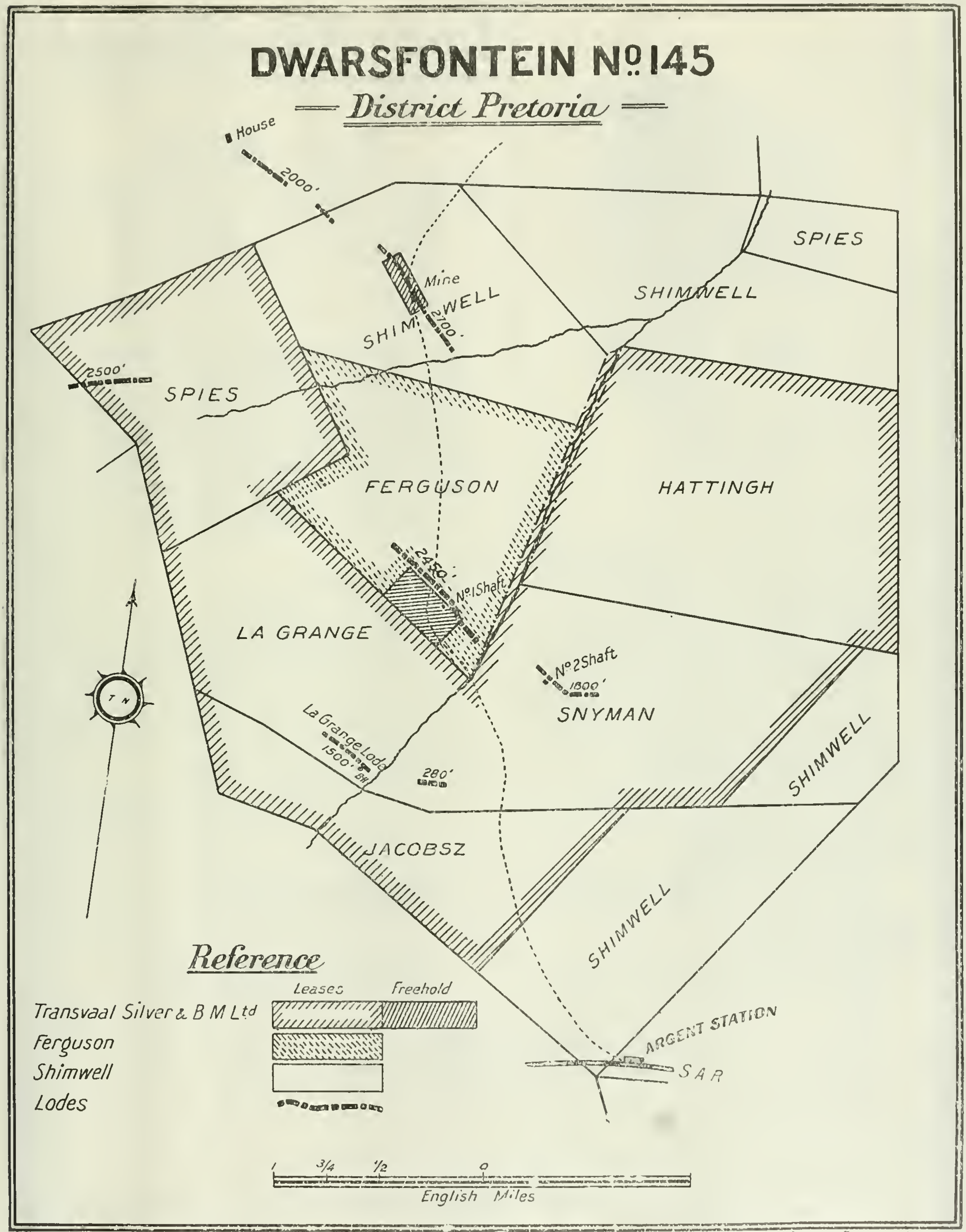
Concentration and Smelting Plant.

The well-known authority, Dr. E. Heberlein of London, has been engaged to investigate and advise as to the best method of concentration and smelting. A parcel of mine ore has been forwarded to him, in order that he may carry out the necessary research work without delay.

Buildings.

Apart from the buildings erected for housing the plant at Nos. 1 and 2 Shafts, the following housing and office accommodation has been erected:—Headquarters House and Office, Temporary Store, Block of Single Quarters, with Dining Room and Kitchen. Portion of Native Compound, consisting of 7 rooms, complete with bunks, kitchen and hospital arrangements. A second block of single quarters, in the vicinity of the No. 2 Shaft, is nearing completion. All bricks for building purposes are being made and burnt on the property.

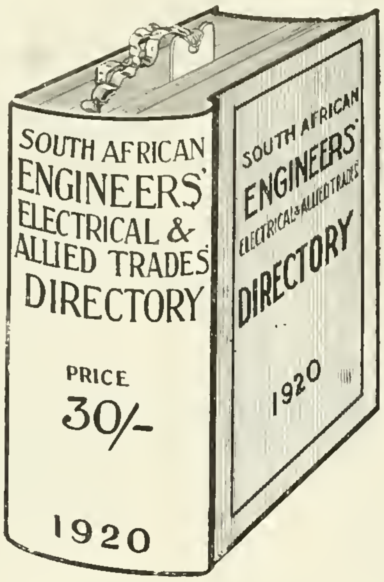
SOME OF THE LODES OF THE TRANSVAAL SILVER AND LEAD MINES.



G. M. & F. Corpn Ltd Survey Dept July 1920

Plan of Transvaal Silver Mines.

The above plan shows the Ferguson Lease claims acquired by the Transvaal Silver and Base Metals. It also shows the other portions of the farm Dwarsfontein 145 under option to the company, viz., Spies, La Grange, Snyman, Hattingh and Jacobsz.


SOUTH AFRICAN ENGINEERS' ELECTRICAL & ALLIED TRADES DIRECTORY
PRICE 30/-
1920
SOUTH AFRICAN ENGINEERS' ELECTRICAL & ALLIED TRADES DIRECTORY
1920

Just off the Press!

The Book You Have Been Waiting For!

THE ONLY DIRECTORY EMBRACING EVERY BRANCH OF THE ENGINEERING, ELECTRICAL, IRON, STEEL, MACHINERY, HARDWARE AND ALLIED TRADES THROUGHOUT THE UNION OF SOUTH AFRICA, RHODESIA, ETC.

SPECIAL FEATURES:

ALPHABETICAL SECTION.

Gives all the essential particulars of **over 600** firms, including the complete Postal, Telegraphic and Cable Addresses, Telephone Numbers, the names of the partners, if any, the exact nature of the business, list of Branches and of Agencies represented In the case of Companies, it gives the details of the Capital, names of the Directors and other information necessary to a correct reading of their business position and importance.

GEOGRAPHICAL SECTION.

Shows at a glance the firms engaged in the Engineering, Electrical and Allied Trades in the various towns.

OVERSEAS SECTION.

Gives the names of **over 1,000** Manufacturers of Engineering, Electrical, Iron, Steel, Machinery, Hardware and Allied specialities, represented in the Union of South Africa, etc., with names of local representatives.

BUYERS' GUIDE.

Provides at a glance a list of the suppliers of all the manifold requirements of the Engineering, Electrical, Constructional, Railway and Mining Material Trades

MINING SECTION.

This is a Complete Mining Directory in itself, giving a list of all the Mines—Gold, Coal, Diamond and Metal—in the Union and Rhodesia, with full address and names of Managers, Resident Mechanical and Electrical Engineers and other Chief Officials. Also an Alphabetically arranged list of the Chief Mine Officials. Complete list of Mining Concerns in the Union of South Africa and Rhodesia.

GOVERNMENT SECTION.

Complete personnel and addresses of Railways, Department of Mines and Industries, Public Works Departments, Inspectors of Mines, Machinery and Factories, White Labour Departments, Mining Commissioners, etc., throughout the Union and Rhodesia.

MUNICIPAL SECTION.

Names of Town Clerks, Treasurers, Engineers and Electrical Engineers and Managers of Power Supply Stations.

FACTORIES, SUGAR MILLS, TECHNICAL SOCIETIES, Etc., Etc.

Published by the South African Mining and Engineering Journal, 176-180, Stock Exchange Buildings (Telephone 913), Johannesburg.

To the Manager, S.A. Mining and Engineering Journal, Johannesburg.

Please send me/us ………………cop…… of the S.A. Engineers', Electrical and Allied Trades Directory, for which enclosed find Cheque/Postal Order value………………………

Name……………………………… Address……………………………………

THE SOUTHERN HALF OF THE "FAR EAST RAND" AND PARTICULARLY THE PROPERTY OF THE SOUTHERN VAN RYN COMPANY.

[*By a Special Correspondent.*]

[*It must be distinctly understood that this paper does not endorse the views of our correspondent regarding the geology of the section here dealt with, and particularly dissociates itself from the statement that the Van Ryn and Nigel are not one and the same reef series.*—Ed. S.A.M.J.]

The early history of this district dates back to the earliest history of the Rand. In 1894 the Nigel Mine was milling an average grade of 23 dwts. and making huge profits.

Much attention was then directed to the district, but, unfortunately, going towards Heidelberg the reef was never properly traced, and, being at the best only a small body of banket, the extension was lost.

Coming towards Marivale the surface is covered with a heavy surface deposit, and, in places, with coal measures and coal. Ordinary prospecting was impossible. Drilling was not then so common as now. The big finds on the Rand took up all the attention and capital offering, and gradually the district sunk into slumber, except for the steady returns of the Nigel Mine and its deep level. On the northern edge of what is now known to be one basin, the Van Ryn Mine and a few others got early to work. Van Ryn returned a gold output in 1888—the same year as the first returns from the Nigel—whilst Kleinfontein and one or two others came in first in 1889.

For years afterwards even those great mines which have had such long and wonderful records stood alone, and the potentialities of this huge area were kept in the background. The reasons for this delay need not be discussed, but the large areas awaiting development elsewhere under the same control was perhaps the most potent factor.

The first big step out into the heart of the district was Geduld. With Geduld shafts down, mine opened and milling started, the first great interest in the district was awakened and has never since halted. On the Nigel side of the basin the big mill policy of the Central Rand applied to a thin rich reef had given bad results, and the district had remained dormant. The expansion was all spreading from the Modder, Brakpan, Geduld side. Boreholes innumerable had been put down, and a number of these, notably on Daggafontein, got high values in a reef some 1,400 to 2,000 feet higher up the series than they expected. This was called Kimberley Reef, and, of course, good values had previously been noted in the Kimberley Reef.

This was the position up to about the outbreak of War in 1914.

Mr. Bleloch, the well-known mining geologist, had noticed the big difference in the sections passing south and conceived the idea that the Nigel Reef was the reef found in the bottom of the Daggafontein boreholes, and that the reef found 1,400 feet higher up was the Van Ryn. This would make the depth to the highly payable Van Ryn Reef much less and no need to sink to the thin and deep Nigel Reef.

The War and its financial strain gave him his opportunity. Many claims right on the track of where this outcrop should be found were being abandoned, and these he secured. Block after block came his way till now he has in the Southern Van Ryn property a large area of claims (over 2,000) right on the outcrop of this reef and extending back to where the outcrop of the Nigel Reef may be expected. This makes one of the most valuable and largest blocks of claims on outcrop reef ever held on the Rand.

The academic geologists can have their say on it, but what interests us, and the investor, is the economic geology. Whether reefs are there, whether there is sufficient gold in them to pay for extraction, and what results may be expected. These are the crucial points. We will try and put briefly the pros and cons of the geological problem.

The orthodox belief is that the whole reef series of the Central Rand thins out considerably going east, and, after passing Boksburg, the pay reef is represented by one member only and that member is known by the various names of Van Ryn, Modder, Nigel, etc.

Mr. Bleloch contends that when Boksburg is passed the Central Rand Section turns south on Leeuwpoort, that consequently it is not present on the Far East Rand, having been removed by erosion, and that the whole Far Eastern Rand consists of a series (lying geologically much lower than the Main Reef Series) of which the reef at Rietfontein is a detached portion, and in this area the Van Ryn and Nigel are two distinct reefs, the Van Ryn lying some 1,400 feet higher up (geologically) than the Nigel. We have gone very carefully over all the ground and examined all the reefs at Van Ryn, Modder and Southern Van Ryn, and also specimens of reef from a new discovery on the Heidelberg field, where reef recognised by orthodox geologists as Van Ryn has been located. All the reefs have a shale foot wall. Van Ryn, Mr. Bleloch's Van Ryn, and the one on Wilgepoort, have distinct and similar characteristics such as large pebbles, smoky quartz pebbles, and pay leaders in hanging, etc. From all of these Nigel Reef is quite distinct. The pebbles in Nigel Reef are only half the size, nearly all the matrix is very dark quartz giving the reef a dark appearance, no gold in the hanging, and so on.

Messrs. Hatch and Corstorphine, in their book (page 129) state: "A particular bed, if followed, will be found to tail off until it ceases altogether, its place being taken on a slightly different horizon by another bed, which, beginning as a small seam, gradually increases to a maximum width when it in turn will commence to thin." Now the orthodox school want us to believe that the Van Ryn Reef carries on 20 miles to Nigel where it is represented by a reef with totally different appearance and then it carries on for another 30 miles and regains most of its former appearance.

Mr. Bleloch maintains that it carries on practically in one character all the way. We would also note that in the Van Ryn, Nigel, Randfontein and Rietfontein Reefs carbon (graphite) is present in notable quantities. This mineral has been noted in similar abundance in the Buffelsdoorn Reef and in the Afrieander at Klerksdorp.

We cannot accept Van Ryn and Nigel as one and the same reefs and there is much in favour of Mr. Bleloch's contention.

Our readers can have it either way or both ways as it suits them. The main points emerging from the controversy is: On the orthodox reading, Southern Van Ryn Mine has 2,000 odd claims lying within the basin wherein all are agreed the Nigel Van Ryn Reef lies, if it is one and the same reef, and has the outcrop of that reef—or rather sub-outcrop—as there is a thin layer of coal measures and dwyka on the surface. This sub-outcrop should be found for over three miles on the property of the Southern Van Ryn Company.

On Mr. Bleloch's reading the outcrop of the Van Ryn Reef has been found in such a position that the reef will be found through at least 1,600 of these claims and 1,000 feet lower (geologically); he has located the sub-outcrop of the Nigel Reef.

Either way you take it there is admittedly by the orthodox school at least one pay reef throughout a virgin property of over 2,000 claims.

Thousands of claims have been developed on Van Ryn Reef and millions extracted from it, and there is no case on record of anything like 1,500 claims in one block ever being proved unpayable.

On the Nigel mines, which almost adjoin the property of the Southern Van Ryn Mine, there has been a steady stream of dividends, amounting in the aggregate to almost two million pounds, so that there is no question of the payability of the Nigel Reef where it has been worked, and we see no reason why as good values should not be encountered in the Southern Van Ryn ground.

The Southern Van Ryn claims are situated on the farms Varkensfontein and Marivale, and are held on the usual terms and mining title, viz., payment of licence money, and when working, payment of profits tax. The claims were acquired about 1915, and the records of the first year of the new company was a continual struggle to get people interested in the area and to get funds for even the licences.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

IRON
AND
STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by

South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

Interest was awakened, funds came in and a little work soon proved that the reefs were there Then along came the Consolidated Gold Fields, who put up some money to prove the ground. Drilling soon satisfied them that the reefs were all right, and a proposal was put forward to sink a main deep level shaft. The Company's finances did not extend to this ambitious project, and as the Gold Fields would not guarantee sufficient to see the scheme through, the proposal was dropped and they stepped back. We are absolutely non-partisan in this, and we cannot see what good it could have done to begin by putting down a deep level shaft on a property where the reefs outcrop, and most certainly it would have been suicidal for the Company to have committed itself to this policy without any prospect of funds being forthcoming to see it through. A year was lost in this, and on the Southern Van Ryn again resuming control, work was started to develop the reef which Mr. Bleloch identifies as the Van Ryn.

We inspected the development on this reef. It is a nice reef, pebbles medium size, well mineralised, and has a shale foot-wall. Thickness runs from one to three feet. Dip of reef is stated to be 60 degrees, but without measuring we think it will be a few degrees more. Anyway, the steeper the better, as the stopes can then be kept narrow. The shaft is down about three hundred feet and two levels have been set off. The first level has been driven for about 500 feet both north and south. On the north side values are fairly good, with some very high ones. Reef thickness from one to three feet and very well defined. Altogether, whilst one would have liked to have seen a little better average value the results can certainly be classed as distinctly promising. When one knows the way values run in the Van Ryn Reef, wherever mined, one could expect anything when sufficient footage has been driven to enable one to make a fair assessment of the proposition. To get a fair value of this reef we think the No. 1 level should be driven for 1,000 feet both north and south, and the shaft carried down a depth of about 1,000 feet and levels driven at that level for a similar distance to the top ones. The intermediate levels could be left out till this preliminary exploring work was done and their cost saved. This work might be done at a cost of £15,000 to £20,000. If the reef is lying in troughs, basins or chutes, as found on most of the mines working the Van Ryn Reef, this work would most probably locate one or more of these chutes To put in levels at 100 ft. intervals is, in our opinion, delaying unduly the exploring work. Unless much water is encountered the present plant, which is apparently in good order and is well looked after, is quite capable of the work.

Nigel-Van Ryn Section.—This mine—for it is no longer a prospect—is situated at the southern end of the Southern Van Ryn property. Twenty years ago the Nigel Reef was located here and some work done, but a small dyke encountered in the shaft seems to have upset and discouraged the owners. The reef, where exposed is undoubtedly Nigel Reef, same characteristics and somewhat similar values. The whole surface of the country hereabouts is flat vleyland, an impassable morass in summer. The surface rocks, where exposed, are of the coal measures with a little dwyka underneath. No wonder the old propectors were discouraged and gave up. For the most part the claims were held in small blocks, and it would be a hard matter to get capital to prospect these in a vley floating in water for half the year. Now on the larger scale this is no drawback. The reef is located at the side of the vley, and the coal measures and dwyka which discouraged the old hands, serve as a sheet to prevent the water getting into the workings.

Boreholes have been put down ahead of the workings proving the depth and continuity of the reef, so that all that remains now is to continue development.

A few months ago the owners made an agreement with the Southern Van Ryn to supply funds and material to carry on development on the ground. Approximately 2,400 feet of driving was done, nearly all on reef, and 60 per cent. of the driving carried pay values. A week or two ago Southern Van Ryn bought the block of claims with all machinery and development. This is an asset of great value to Southern Van Ryn. A month ago they had only the workings on the reef which Mr. Bleloch identifies as Van Ryn with insufficient development on which to do any milling. To-day they have a mine developed down to 220 feet disclosing pay reef on an undoubtedly known pay horizon and adjoining a mine making profits on the same reef worked under the dearer deep level conditions Also they have a mill at work producing gold. In the mine they have 18,000 tons of ore in sight of an average value of 7·2 dwts. There is not much water in the mine and there should be no trouble in getting away with the new three compartment shaft, which is at present proposed, and adding quickly to the ore reserves. We inspected stopes worked at a width of 24 or 25 inches of which the management is justly proud. This is the right policy and it can be maintained. Stopes as narrow as 20 inches were common in the earlier days on steep reefs and all done with hammer boys, but then, that was before the days of the policy of big mills and big stopes had spoiled the work of the good miner. Altogether we were much impressed with the prospects of this section of the property. The management is alive to its possibilities and very shortly work will be concentrated on this section. Much has already been done since taking over, and a few months will materially alter the position.

THE COAL MINE.

The coal measures which so effectively thwarted the earlier prospecting is now to be of the greatest service to the Company. On the rising ground towards the Manager's house a seam of coal has been found and proved over a large area. A small shaft was put down to test the seam which at this point was found at a depth of 40 feet from the surface. An incline was then put down and a small hoist installed. From this an output of 400 or 500 tons per month is being drawn, sufficient for the present requirements of the mine.

The seam is the same seam and we should think the same quality as was worked successfully by the De Rietfontein, Clydesdale and Cassel Colleries. It burns well on the boiler fires and gives no trouble from clinkering. The boilers are loco type with restricted firegrate but there seemed no difficulty in maintaining steam. In the house—like the old Springs coal—it is a little slow to light up, but once started it burns steadily with a strong heat. It is from 10 to 15 feet thick and of regular quality from top to bottom.

This is a very valuable asset to the Company and we suggest to the management that they should carefully study the cost of transport by modern light steam motors. With rising rates and costs it might be quite able to compete on the reef with the dearer Witbank or Ermelo article.

Right from its inception Finance has been the bugbear of the Company. Whoever before heard of a man starting to develop a mine of 2,000 claims on the Witwatersrand with the cash that is often put into a small prospecting syndicate? Yet that is—tersely put—what has been done on the Southern Van Ryn. The Goldfields coming in helped them along wonderfully and now the acquisition of the Nigel Van Ryn mine gives them another big lift up. Much more money will be required to finance the mine on a scale adequate to its size and possibilities but no doubt this will be obtained as and when required. The present capitalization of the mine is not one quarter of that of any mine on the Far East Rand of equal claim area so that it is not likely to be waterlogged.

In conclusion we would point out that the distance from the Springs mine—which is admittedly working Van Ryn reef—to Southern Van Ryn is not much greater than the big jump taken by Geduld when they made the first move, and, it has this important safeguard: that they, the Southern Van Ryn Co., have the outcrop of the same reef which is successfully worked by their immediate neighbours, the Sub Nigel.

The conclusion we have come to from the evidence we have seen may be summed up as follows:—Whether the reef identified by Mr. Bleloch is Van Ryn or not may remain a disputable point for some time, but most decidedly no one who has examined the various reefs on the section in question can affirm that Nigel reef and Van Ryn reef are one and the same. This is not an abstract geological problem but a matter of vast monetary interest to the whole Far East Rand and to the country. The only real and final settlement of the question will be to select a clear undisturbed area in a mine like Brakpan, Geduld, Government Areas or Springs working unmistakably Van Ryn Reef and to drill down at least 2,500 feet into the foot wall of Van Ryn reef. The cost would not be more than a year's salary of the Government Geological Department and would finally settle the question. The mine is in the capable and careful management of Mr. Tutt to whom, and to Mrs. Tutt, we tender our best thanks for kindness and consideration shown during our visit.

HADFIELDS LTD.

WORKMEN
EMPLOYED
DURING THE WAR
OVER 15,000.

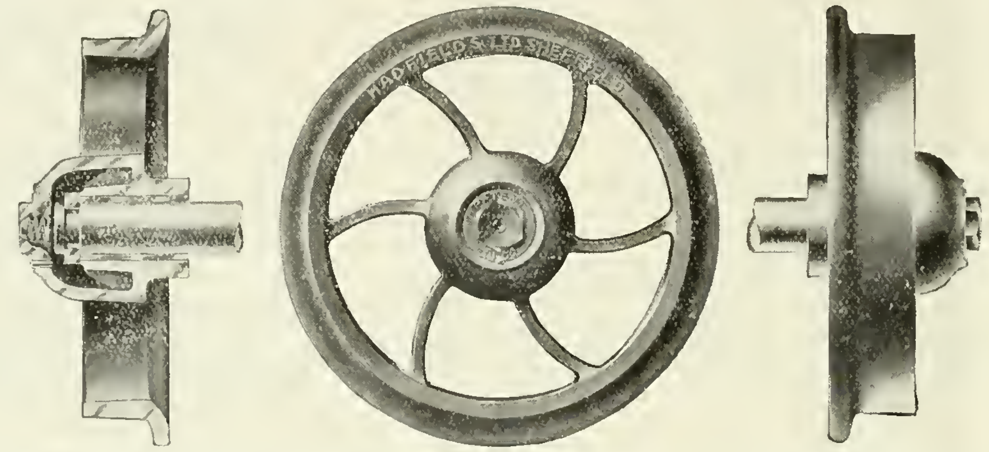
East Hecla and Hecla Works, Sheffield, England.

WORKS AREA:
OVER 200
ACRES.

ROWBOTHAMS

Self-Oiling Wheels and Axles

FOR MINE WAGONS.



ROWBOTHAM'S Wheels have withstood the most severe tests, and have been adopted exclusively in many of the largest Collieries in England.

ALL the Wheels are fitted with a special frictionless bronze bush, which prevents wear on axles and reduces friction to a minimum

ALL THE WHEELS ARE MADE OF HADFIELD'S TOUGHENED CAST STEEL

AFTER being charged with oil they usually require no further attention for a month.

SO perfect is the lubrication, that the ease with which tubs fitted with Rowbotham's Wheels can be hauled is astonishing.

THE cost of oiling is, approximately, one penny per month.

STEEL CASTINGS AND FORGINGS OF EVERY DESCRIPTION.

Complete Stone Breaking and Ore Crushing Plants.

ERA
Trade Mark

SOLE MAKERS OF HADFIELD'S PATENT

MANAGANESE STEEL

THE SUPREME MATERIAL FOR THE WEARING PARTS OF CRUSHING, MACHINERY, ETC.

Head Office for South Africa: 46 and 47 CULLINAN BUILDINGS, JOHANNESBURG
PHONE 5900 TEL. ADDRESS: 'HECLA' BOX 1009
STORES: DENVER, TRANSVAAL (Adjoining Denver Station)

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

Natal Agents:
THOS. BARLOW & SONS
(S.A.), LIMITED,
Smith Street, Durban.

THE WEEK IN THE SHAREMARKET.

Irregular—Selling from London—West Springs and Transvaal Silvers Better.

THE local market has been somewhat irregular during the past week and at times there has been fairly heavy selling from London, presumably on account of the critical situation in Poland. The undertone of the market is, however, good and there is a general feeling of optimism as to the effect of the reduced rate of exchange and increased price of gold on profits and it is anticipated that the July declarations will be substantially better than have been announced for months past. All the big Modder stocks remain firm. New Modders have been dealt in at 69s. and Modder B's at 125s. to 127s. 6d. Modder Easts are steady at 22s. 9d. West Springs have gone better and Sub-Nigels, on news of good development, advanced to 17s. In diamond shares Rouxvilles have been very active, but after advancing to 29s. are slightly weaker at 25s. Frank Smith's are firm at 16s. buyers and Transvaal Silver and Base Metals have been in fair demand at about 45s.

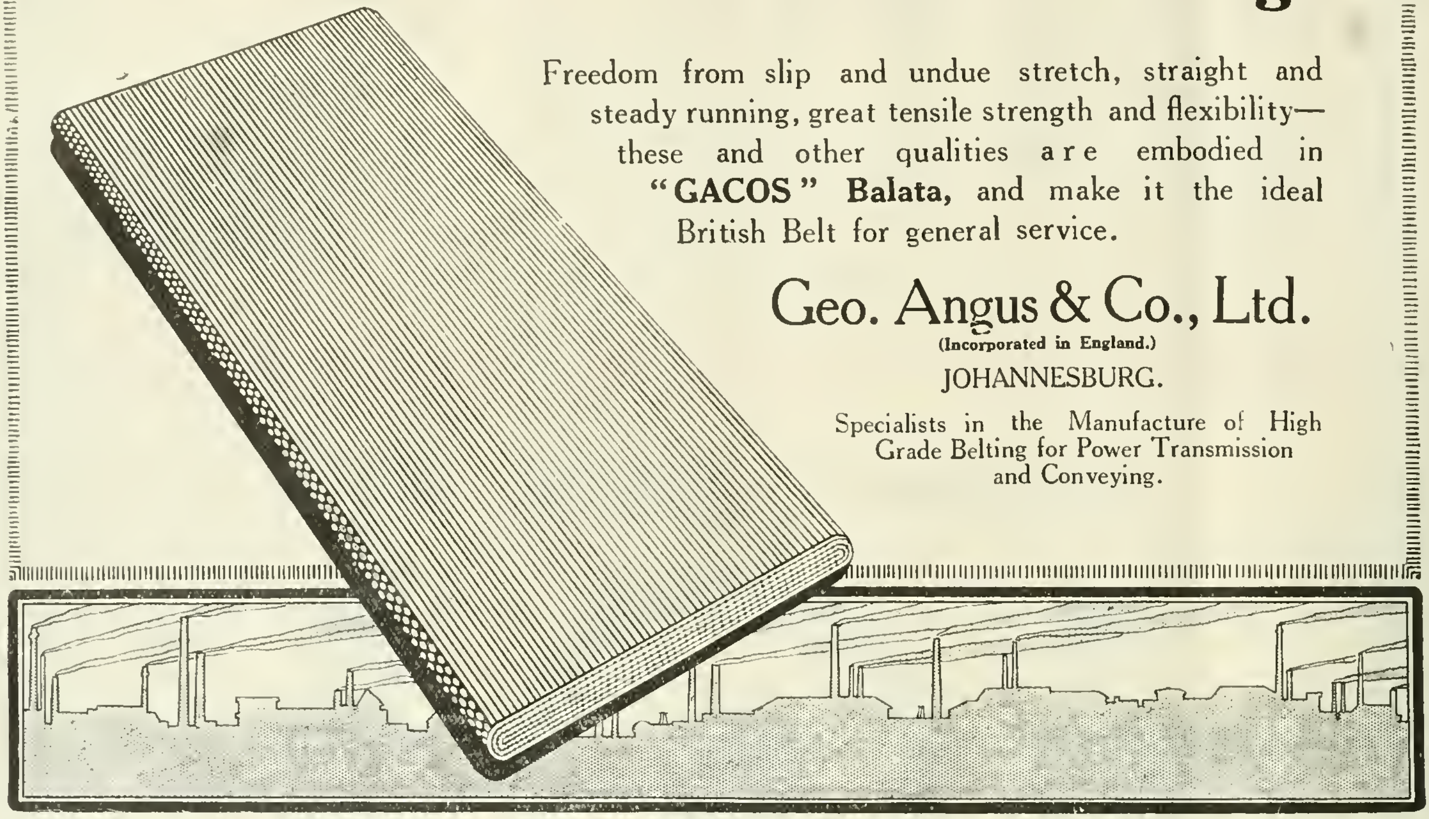
	Fri., 23rd.	Sat., 24th	Mon., 26th.	Tues., 27th	Wed., 28th.	Thurs., 29th.
Anglo-Am. Corp..	34 0	32 6	33 0*	33 0	32 6	32 0
Bantjes Cons.	3 0*	3 0*	3 3*	3 6	3 6*	3 0*
Blaauwbosch Dmds.	—	—	—	—	—	80 0†
Brakpan Mines	49 6*	51 0*	53 6†	54 0†	53 9†	52 6†
Breyten Colls.	—	—	—	—	8 0*	8 0*
Bushveld Tins	1 0*	1 6†	1 6†	1 0*	—	0 11*
Cinderella Cons.	4 6†	4 6†	4 6†	4 6†	3 0†	—
City and Subs.	6 0*	—	5 9*	—	6 0*	7 0*
City Deeps	48 6	47 6	48 0*	49 0	49 6*	51 3
Con. Diamonds	35 0	36 0†	36 0†	32 0*	—	—
Clydesdale Colls.	24 0*	—	24 0*	—	—	—
Con. Langlaagtes	15 0*	15 0*	—	—	—	—
Con. Main Reefs	12 9*	12 9*	12 9	12 9	12 6*	12 9*
Con. Mines Select..	—	21 0*	—	—	—	—
Coronation Colls.	65 0*	—	—	—	—	—
Coronation Freeholds	1 1*	1 1*	1 2*	1 3*	1 3*	1 4
Coronation Syndicates	—	8 0*	8 0*	8 0*	—	—
Crown Diamonds	7 4½	7 3	7 0*	7 3	7 0*	6 10*
Crown Mines	—	46 0*	47 0*	—	48 6*	—
Daggafonteins	10 0	10 0	9 6*	10 3	9 9	9 6
Do. Options	1 3*	1 3*	1 4*	1 3*	1 3*	1 3*
East Rand Coals	2 3a	—	—	2 4*	2 4*	2 4*
East Rand Deeps	1 0†	—	1 0†	—	0 10*	—
East Rand Minings.	12 0*	—	—	10 6	13 0*	—
East Rand Props.	7 3	7 3*	7 4*	7 9*	8 0*	—
East Rand Debs.	£69†	£69†	£70†	£70†	—	—
Rrank Smith Dmds.	16 6	15 9	16 0	16 0	15 4½	15 7½
Geduld Props.	40 0	39 6	40 6*	39 6*	39 3*	39 3
Glencairns	1 6*	—	—	1 6*	—	—
Glynn's Lydenburgs	10 6*	10 0*	10 0*	—	10 6*	10 6*
Govt. Areas	86 6*	85 6*	85 6*	85 6	85 6	85 6*
Jhb. Bd. of Ex.	38 0*	38 0*	39 0*	—	—	39 6*
Jupiters	2 6†	2 6†	2 0*	2 0*	—	2 0*
Klerksdorp Props.	2 0*	—	2 0*	2 0*	2 0*	2 0*
Knight Centrals	4 2*	4 0*	4 0*	4 1*	—	4 5
Knights Deeps	—	4 6*	—	6 0†	4 6*	4 6*
Lace Props.	—	10 3	10 0*	11 3	10 9*	10 6*
Leeuwpoort Tins	20 9	20 0	20 3	20 0*	19 10½	19 9
Lydenburg Farms.	7 3*	7 0*	7 0	7 6†	7 0	7 6
Middelvlei Est.	1 6	1 6*	1 3*	1 6	1 6*	1 7
Modder B.'s	125 0	124 0	124 0	125 0	127 0	127 0*
Modder Deeps	43 6	42 6*	43 3	43 0*	43 0	42 9
Modder Easts	23 1½	22 6	23 0	22 9	22 7½	22 9
Do. Opts. (4 yrs.)	7 3b	6 9	7 0	7 0	7 0*	7 0
Natal Navig. Colls..	24 6*	23 0*		—	—	—
National Banks	—	—	260 0*	270 0†	260 0*	270 0†
New Eland Dmds.	62 6†	62 6†	65 0†	62 6†	—	62 6†
New Era Cons.	8 0	—	—	—	8 6*	8 6*
New Geduld Deeps.	1 7*	1 7*	1 9*	1 7*	1 7*	1 7*
New Heriots	—	—	6 6*	6 6	—	7 0†
New Kleinfonteins	7 6*	6 6*	7 0*	710	7 9*	7 10
New Modders	69 0*	68 6	69 0	69 3	69 0	68 9*
Nourse Mines	9 9*	—	—	—	8 9*	8 6*
Pretoria Cements	112 6	111 3*	111 6	112 6	113 0	113 0*
Princess Estates	—	0 7	0 6*	—	0 7*	0 7*
Rand Mines	—	—	—	54 0†	50 0*	—
Rand Nucleus	1 3†	—	1 3*	—	1 3*	1 2*
Randfontein Deeps	6 1½	6 0*	—	6 3†	5 9*	5 6*
Randfontein Est.	18 3	18 3	18 3*	18 3*	18 3*	18 3
Roberts Victors	14 0†	12 6*	12 6*	12 0*	12 6*	14 0†
Rooibergs	7 6†	6 9*	6 9*	6 9*	7 1	7 0*
Roodepoort Uniteds.	—	0 6*	0 6*	—	0 6*	0 6*
Ryan Nigels	—	3 3*	—	3 3*	3 3*	3 3*
Simmer Deeps		—	—	0 6†	—	0 3†
S.A. Lands	4 10*	4 9	4 9*	4 8*	4 8*	4 7*
Springs Mines	38 9	38 0	38 0	38 0*	38 6	38 0*
Sub-Nigels	12 0*	13 0*	16 6	17 0	16 3	15 10½
Trans. G.M. Est.	12 6*	12 6*	13 6†	13 6†	13 6†	13 0†
Van Ryn Deeps	—	80 0*	81 0	80 0*	79 0*	80 6
Village Deeps	9 0*	9 0	—	9 0*	9 3*	9 3*
Village Main Reefs	6 0†	—	7 0†	7 0†	—	6 0†
West Rand Cons.	—	3 6*	3 6*	—	—	—
Western Rand Est.	4 0	3 9	2 6*	3 3*	4 1*	4 0*
Witbank Colls.	—	50 0†	43 0*	50 0†	48 9†	48 0
Wit Deeps	8 3b	7 6*	7 6*	7 6*	8 9*	8 9*
Wolhuters	4 0	—	4 0†	3 6	4 0†	3 6*
Zaaiplaats Tins	8 0	7 9*	7 9	7 6	7 6	7 4*
Union 5 per cent.	£98¼	£98	£98	£98	£98½	£98¾*
Kaalfonteins	0 5†	—	0 5†	0 5†	0 5†	0 5†
Modder Wests	15 6	15 0*	15 0	15 0*	15 0*	15 0*
New States		26 9b	27 0b	27 3	26 9*	26 9*
Rouxvilles	28 6	28 0*	27 0	26 6*	27 0	26 3*
South Van Ryns	8 0†	7 9	8 0	7 6*	—	7 9
S.A. Townships	12 6*	12 0*	12 6	12 6	12 0*	12 0*
S.A. Alkail	29 6	28 6	29 0	29 0	28 3	28 3
Transvaal Silvers	40 0*	42 6a	41 3*	40 0*	—	45 0†
Do. Options	18 0*	20 0*	—	20 0*	20 0a	20 0*
Victory Diamonds	1 3	1 3	1 3*	1 3	1 3*	1 4
West Springs	16 0	15 6	16 0	17 3	17 0	16 9*
Do. Options.	2 9	2 7*	2 9*	3 6b	4 0†	3 6*
Trans. and Del. Bay	72 6*	72 6*	—	—	—	—

*Buyers. †Sellers. aOdd lots. bEx London.

MAGNESITE. For Sale—Raw Magnesite of finest quality, in any quantity. Apply—Magnesite, S.A. Mining Journal, Box 963, J'burg.

National Trading Co.,
54-58, CULLINAN BUILDINGS,
JOHANNESBURG.
Box 2762. Telegrams: "Gloria."

STOCKS OF
SHOVELS and SPADES.
DRILL STEEL.
RUBBER CONVEYOR BELTING.
LEATHER, BALATA and RUBBER DRIVING BELTS.
"PIONEER" and "FISHBRAND" OILSKIN SUITS.
WIRE ROPES.
OXY-ACETYLENE WELDING and CUTTING PLANTS.
ENGINE and SHEET PACKINGS OF ALL KINDS.



"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

C. C. WAKEFIELD & Co., Ltd.,

Manufacturers of

High-Class Lubricants

FOR

RAILWAY, MARINE, ELECTRICAL, MINE and COLLIERY WORK.

Makers of the Famous

"CASTROL" MOTOR OILS.

Patentees and Makers of

MECHANICAL LUBRICATORS.

P.O. Box 2123. Telephone 6418 Central
24/25, OCEANA BUILDING,
Simmonds Street,
JOHANNESBURG.

P.O. Box 1521.
HULSTON'S BUILDING,
Smith Street,
DURBAN.

Telegrams: "CASTROL."

SPECIAL COAL, IRON AND STEEL TRADES SUPPLEMENT.

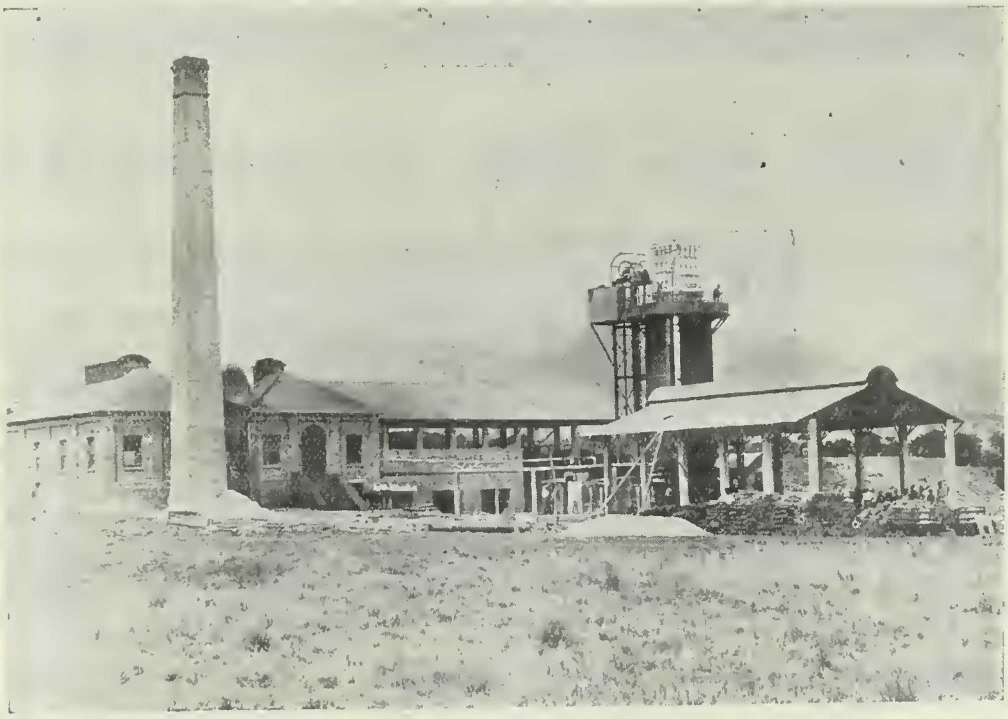
THE ESTABLISHMENT OF IRON AND STEEL INDUSTRIES IN SOUTH AFRICA.

A Brief Retrospect—The Immense Local Demands for Iron Products.

THAT iron and steel to-day are more important than any other metals was shown during the late War, for the country that had the greatest steel-producing capacity came out on top; and it was not until the Allies increased their iron and steel making capacity to that of Germany that they forged ahead. Of the leading British possessions, Canada, India, Australasia and South Africa, the last is the most backward in this respect. Australia made its first attempts at producing pig iron in 1848, and later in 1865. The furnace was rebuilt and was producing 60 tons per week at £5 17s. 6d. per ton, but it only ran a few years as they had no protection against large foreign plants. The iron being carried as ballast, South Africa in many respects resembles Australia, only that we are about 11 years behind them in our first modern plant.

OUR CRYING NEEDS.

Yet the needs of steel in a new country like South Africa are proportionately far higher than in the old one. Because in South Africa distances are very great and settlement dependent upon communication, we use an enormous quantity of steel. The Rand's 60 miles of gold-bearing reefs containing many millions of pounds worth of the precious metal, the extraction of which necessitates the employment of very heavy machinery, starting as it does with the shovel, pick and drill, grizzley and rotary screens, rock breakers, gravity stamps, tube mills, the plant for the transport of the ore from underground to the reduction works, consisting of rails, trucks and their accessories, is one huge grinding machine consuming in the neighbourhood of 65,000 tons of steel per annum.



WORKS OF THE PRETORIA IRON MINES NOW INCORPORATED IN THE S.A. IRON AND STEEL CORPORATION, LTD.

THE RAILWAYS.

The crying need of South Africa is railways. Many miles remain to be completed to the east and west. The acquirement of German South-West and German East, the undeveloped territory of the Union, the Belgian Congo, Angola and Central Africa: all are eager to bring their rich but unsettled lands into touch with the markets of the world, and this can be done only by means of railways. The requirements of the diamond mines, the rapidly increasing and valuable coal industry, the agricultural and domestic requirements, the sugar industry, pipes for irrigation, building material in the form of corrugated iron, the fencing of the farms of vast areas, and the bridges to build, must not be lost sight of. South Africa can in fact consume all the iron and steel it can produce for many years to come. Only now are we beginning to realise the immensity of our iron resources and the vast measure of our market for the products of those reserves. In succeeding pages we shall endeavour to indicate the potential immensity of our iron and steel trade and to show what is being done by various enterprises to make South Africa a big iron manufacturing country. But before doing this it may be well to briefly recount the history of iron and steel making in South Africa prior to the successful establishment of the industries at Vereeniging and Pretoria, at Dunswart and at Newcastle.

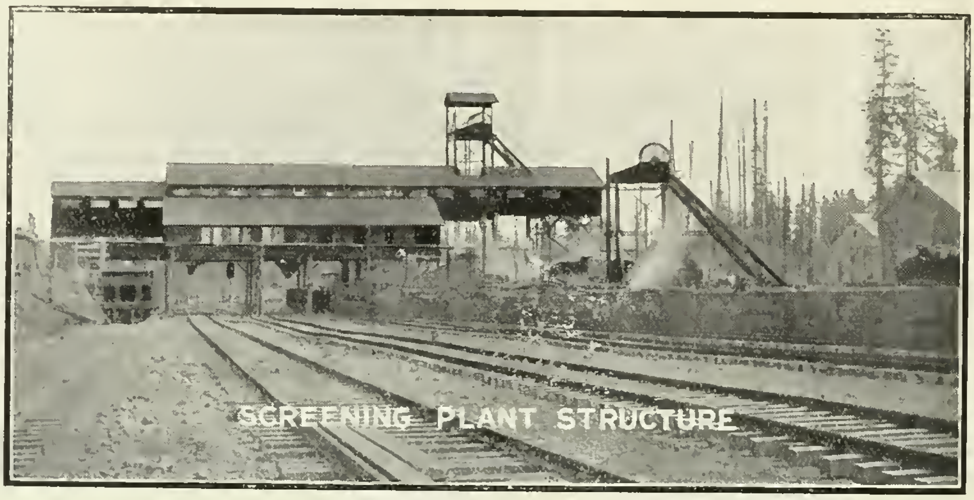
In the manufacture of iron and steel bars, the first company formed was called the Transvaal Iron and Steel Co., with a capital of about £50,000. That was in 1905.

HEAD, WRIGHTSON & Co., Ltd.,

ENGLAND,

Manufacturers of all Classes of

COLLIERY PLANT.

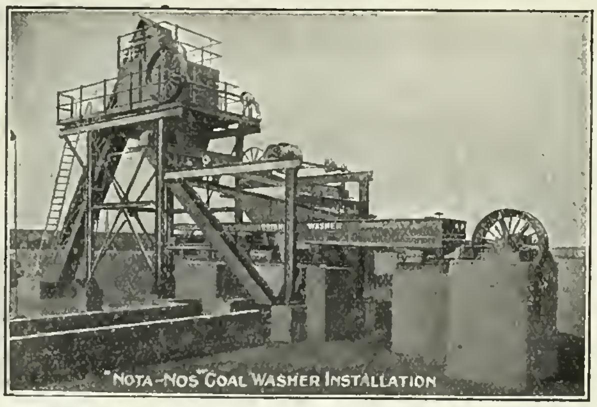


SCREENING PLANT STRUCTURE

Headgears and Coal Screening Plants.

MAKERS OF

Headgears.
Headgear Sheaves.
Cages.
Kep Gears.
Stephen Humble Safety Hooks.
Friction Driven Tipplers.
Jigging Screens.
Marcus Screens and Conveyors, etc., etc.



"NOTA-NOS" COAL WASHER INSTALLATION

MAKERS OF

Plate Picking Belts.
Deflecting Jibs.
Raising & Lowering Gears
Scraper Conveyers.
Bar Picking Belts.
Elevators.
Creepers.
Rotary Screens.
Band Conveyors, etc., etc.

COAL WASHING PLANTS.

Designs prepared and estimates submitted by

HEAD, WRIGHTSON & CO. (SOUTH AFRICA) LTD.,

47-48, Standard Bank Chambers, Johannesburg.

They erected buildings on a site at Kempton Park, some 18 miles from Johannesburg, where a 10 in. guide mill and an 18 in. mill were partly erected. These mills were purchased in New Zealand and were second-hand. This company never got to the producing stage, and in 1911 was liquidated and the mills sold as scrap.

The first serious attempt to make steel in the Transvaal was by a syndicate who erected a small open hearth steel furnace and buildings at Denver about the year 1906. The hearth of the furnace was built on a six-wheel truck and was to be pulled out from under the crown and the contents poured into a ladel and then into moulds for battery shoes and dies. The furnace was badly designed and it was quite evident the management was in the hands of amateurs, for they were unable to pour their first charge, and it lay there for some years.

The first attempt in South Africa to produce pig iron from local ores was at Sweetwaters, near Maritzburg, by a very small furnace. A small quantity of pig iron was produced, but the plant was far too small to work on a commercial basis, and after a few months closed down. Within the last two years, two companies were formed in the Transvaal to erect experimental plants to try out the local ores. Both, so far as producing pig iron is concerned were a success, as some iron of good quality was produced by both, but the furnaces were only capable of producing about 7 tons per 24 hours, so that these plants were also too small to work on a commercial basis. Since 1913, however, success has attended the making of iron and steel in South Africa as the succeeding pages of this supplement will amply show.

Composition of Steel.

The word steel, nowadays, covers a multitude of mixtures which are very different from each other in their chemical as well as physical qualities. The ingredient that exerts most influence on these varieties is carbon. High-grade razor steel contains about 1¼ per cent. carbon, springs 1 per cent., steel rails from ½ to ¾ per cent., and soft steel boiler plate may go as low as 1/16 per cent. carbon. Pig iron from the blast furnace and cast iron contain from 3 to 5 per cent. of carbon, and wrought iron only a trace of it, while steel is between these two extremes.

The Stockholm correspondent of a Copenhagen paper writes that the offer of South African Witbank coal has now led to the placing of some orders. For immediate delivery a contract has been concluded of 20,000 tons for Gothenburg. Later 40,000 tons will probably be delivered also at Gothenburg. The deal has been made with the African-Scandia Co-operative Company, Limited, of Johannesburg. In order to extend its sphere of activity this company has absorbed a large South African export firm. It has, furthermore, acquired the sole right for the sale of the paper of many Swedish mills, and of other industrial products. The aim of all this is to arrange trade between Scandinavia, especially Sweden, and South Africa without the help of numerous middlemen, through whom business has been transacted hitherto. The Swedish Government has directed its attention to the new coal market and in the investigation begun some time ago by the Trade Commission, regarding measures for securing the country's supply of coal, due attention is being paid to South Africa. Shipments of coal have already been begun, and the prospects for their continuation are said to be favourable.

BY-PRODUCT COKE OVENS AND PLANT

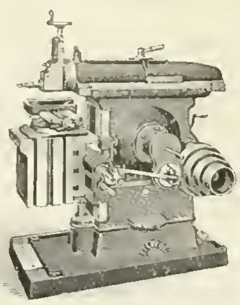
THE SEMET-SOLVAY OVENS
BUILT BY
The Coke Oven Construction Co., Ltd., Sheffield
WILL GIVE THE BEST RESULTS AT THE LOWEST WORKING COST.

Several thousand Ovens have been built throughout Great Britain, France, Belgium and America, etc., amongst which will be found the following Firms :

BRUNNER, MOND & CO., LTD.
W. BAIRD & CO., LTD., 210 Ovens.
WIGAN COAL & IRON CO., 132 Ovens.
STRAKERS & LOVE, 120 Ovens.
BRYMBO STEEL CO., LTD.
UNITED ALKALI CO., LTD.
BOLCKOW, VAUGHAN & CO., 290 Ovens.
JOHN LYSAGHT LTD., 96 Ovens.
THE BROKEN HILL PROPRIETARY CO., LTD., 156 Ovens. And repeat order, for a further 66 this year (1920).

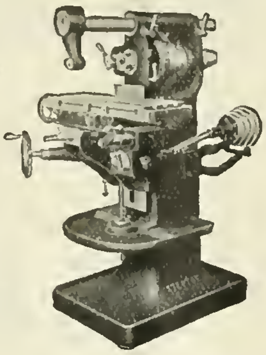
Agents for South Africa, from whom all particulars can be obtained :—

HANNAM, BONSALL & CO.,
7, MAXWELL BUILDINGS, HARRISON STREET, JOHANNESBURG.
P.O. BOX 4236.
'PHONE 4907.



A Steptoe Shaper

Bartle's Service
is
at your Service



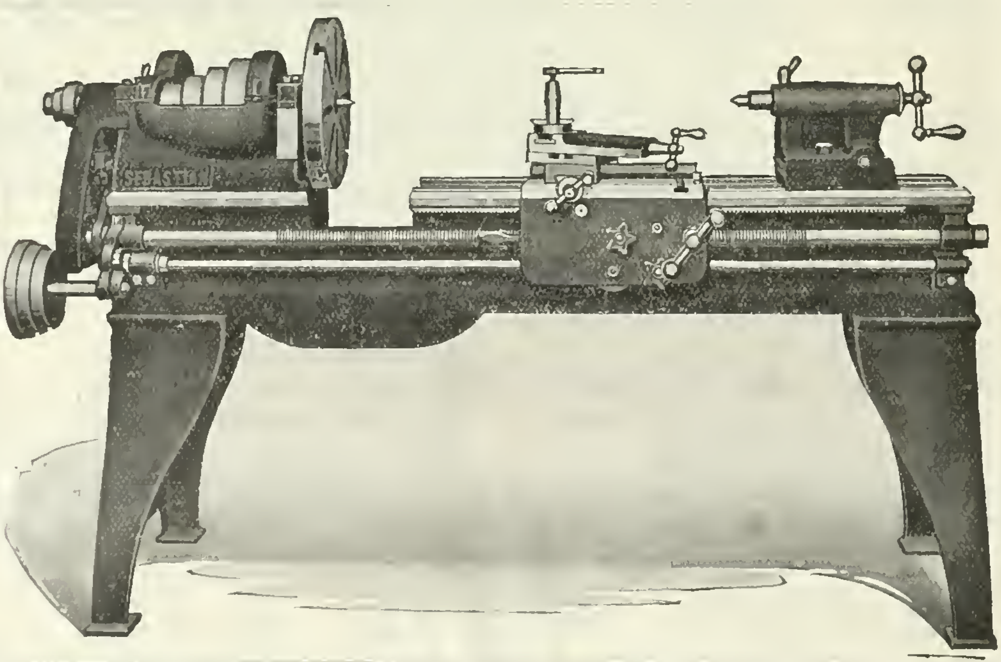
Steptoe Milling Machine

AND Bartle's service means *better* service—it means unusually large stocks, right kinds, right qualities, right prices, always; prompt and intelligent attention to your enquiries and orders, whether given verbally, by 'phone, wire, or by letter—and it means a constant desire and ability to thoroughly satisfy in all ways, at all times. It is a service that endeavours to make of every transaction an additional link in the chain of Bartle success and advancement. In short, it is a service that is satisfied only when the customer is satisfied. This is the service that is at *your* service—always.

THE numerous Sole South African Agencies which Bartle's control include:— Sebastian and Lodge, and Shipley Lathes; The Muntz Metal Co.'s Rods, Tubes and Sheets; "Camel Hair" Belting, SaBeN Sheffield Steels; John Davis' Scientific and Surveying Instruments; Reddaway's Rubber Hose and Belting, etc.; McLachlan Mine Trucks and Light Railway Material; The John Steptoe Co's. Shapers and Millers; Edward Herbert's Machine Tools; Fairbank's Valves and Oil Engines; Weston Electrical Measuring Instruments; Johnson and Phillip's Cables, Wire, Transformers and Switch Gear; Colata Balata Belting; John Shaw's Wire Ropes; Robert's Steam and Water Packings and Asbestos Goods; Gimson Winches; Palmetto Packings; Oster Screwing Machines; Kearney and Trecker Milling Machines; Holt and Willett's Hoists, Lifting Tackle and Electric Lifts; Limestone Wood Split Pulleys; Republic Motor Trucks; Foden Steam Lorries; and the products of many other leading British and American Manufacturers. Prompt attention awaits your inquiries and orders.

BARTLE & COMPANY, LTD.

ELECTRICAL, MECHANICAL & AUTOMOTIVE ENGINEERS & MINING MATERIAL MERCHANTS
P.O. Box 2466 . 'Phone 3553 . Wires: "Faggot" — LOVEDAY HOUSE, JOHANNESBURG



Our illustration shows the "Sebastian" 15-inch swing gap bed engine lathe, for which we are the Sole South African Agents.

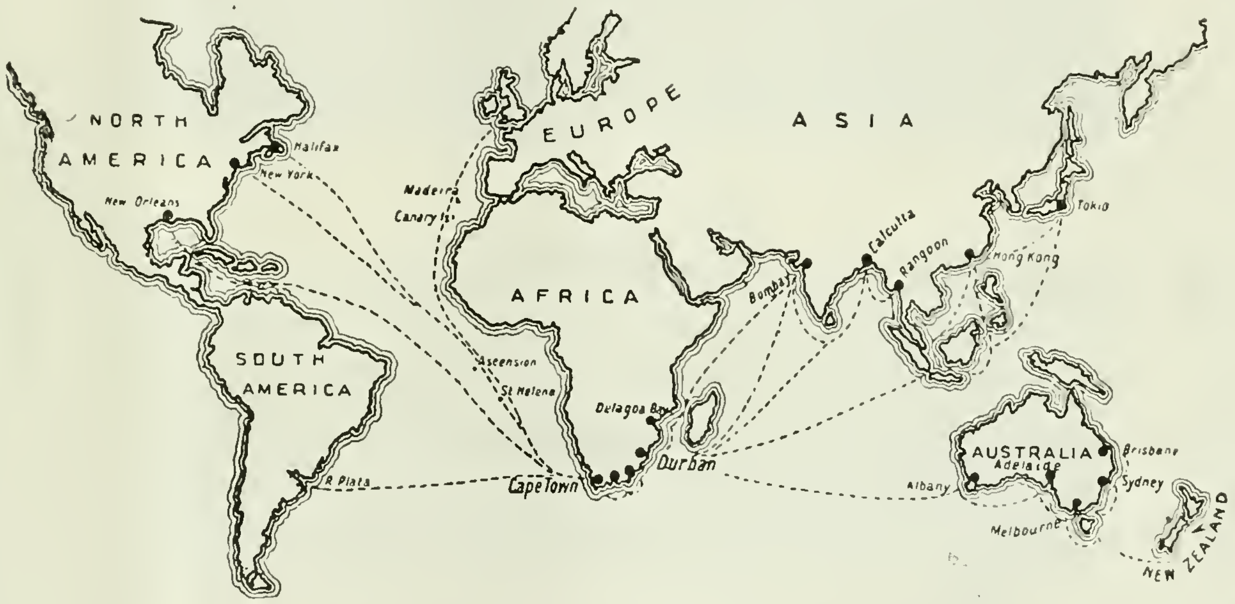
THE IRON RESOURCES OF THE UNION.

Vast Reserves Available—The Harbord and Stanley-Wagner Reports—Geology of the Pretoria Deposits—The Dawn of a Steel Manufacturing Epoch in South Africa.

According to some archælogists, it is quite probable that the Iron Age had its birth in Africa, where the existence of extensive ancient iron workings has given rise to the belief that the Bantus, who inhabited the Dark Continent in the dawn of time, were amongst the earliest workers of the metal upon which civilisation has reared its edifice of progression. This may or may not be so; the matter is of academic interest only. But the fact that South Africa, despite the known existence of huge deposits of haematite, magnetite, chalybite and other ores in proximity to railways, coal beds and large deposits of satisfactory flux, has only recently begun to assume any measure of importance as an iron-producing country, is of vast industrial interest and moment.

The Transvaal ironfields, and notably those in the vicinity of Pretoria, have been known of for a great number of years, and for at least a quarter of a century the establishment of an iron and steel industry in this country has been talked of. But for years this branch of the mineral industry got no further than the "talk stage."

OUR FAVOURED GEOGRAPHICAL SITUATION.



Map of the World. South African Coaling Ports. Central and Extensive Coal and Iron Deposits along the Railways 500 Miles or less from the Coast.

The Harbord Report.

About ten years ago, however, Professor Harbord, an English iron and steel expert, investigated our iron ore deposits and made a report which very effectually damped the ardour of would-be creators of a South African iron and steel industry. Professor Harbord's conclusions were distinctly discouraging, and it has taken the potential iron industry of the country a good long while to live down the unfavourable impression created by the Professor's report, just as it took the Witwatersrand some time to live down the evil reputation it gained from one of its first "experts," who declared it to be an alluvial field of short-lived prospects.

In the last year or two, however, other investigators have expressed their well-considered convictions that the prospects of establishing a successful iron and steel industry in this country are positively alluring—we especially allude to the close examinations and optimistic conclusions of Professor Stenley and Dr. Wagner in this connection. But the most convincing testimony of all is to be found in the fact that an iron and steel industry has already been established.

South Africa's Vast Reserves of Iron Ores.

Before, however, considering what has been done in building up this important Industry, and what it is proposed to do in making South Africa a great Iron and Steel Country, let us first realise the immensity of our iron ore resources.

A recent survey by Dr. P. A. Wagner has shown that South Africa has enormous iron reserves. In this respect, indeed, she appears to be second only to Brazil. What this will eventually mean to the country may be gathered from the fact that, at the present rate of increase in iron and steel production, the known extra-African sources of iron ore of present-day commercial grade are estimated to be within measureable distance of exhaustion. Another advantage which South Africa possesses lies in the fact that it is one of the very few countries with large reserves of iron ore that also possesses great coal reserves.

Our iron deposits include six of first magnitude in the siliceous ironstone horizon of the Pretoria series, the titaniferous magnetites of the Bushveld complex, the haematite deposits on Buffelshoek No. 151, and adjoining farms in the Rustenburg District of the Transvaal; the iron deposits on the farm Kromdraai, near Warmbaths, those situated in the Dundee and Utrecht districts of Northern Natal, and the Blinkklip breccia deposits of Griqualand West, which probably contain hundreds of millions of tons of ore of commercial grade, and which are entitled to rank among the great iron ore deposits of the world. Other important deposits include the clay-band on the Pretoria town lands.

Pretoria's Iron Resources.

In 1917 the South African Mining and Engineering Journal published a highly important paper entitled "The Iron Ores of the Pretoria Town Lands" (by P. A. Wagner, Dr. Ing., B.Sc., F.R.S. (S.A.), M.A.I.M.E, and G. H. Stanley, A.R.S.M., F.I.C., M.I.M.M., M.I.M.E.).

This valuable contribution to the scanty literature existing on South Africa's iron resources aroused great interest, and in view of its obvious importance we reproduce at some length extracts from Dr. Wagner's and Professor Stanley's views.

HYCOL

Guaranteed Co-efficient 18-20.

SUPPLIED to all Government Departments and the Railway Administration under contract.

A dilution of 1 in 800 equals a carbolic acid dilution of 1 in 40

The most economical in use as well as the most effective for mine disinfection

Palum:

A new wood preservative and walnut stain. Covering power 800 square feet per gallon

Pacolol-Lysol:

Officially adopted by H.M. Admiralty and the principal Hospitals in Great Britain

Pearson's Hycol, Ltd.

Head Office for South Africa :—

82, Main Street, Johannesburg.

'Phone 2472. Telegrams : "HYCOL." P.O. Box 1758.

The authors stated, inter alia: There are four distinct iron horizons in the Transvaal System, as developed in the neighbourhood of Pretoria. These are:

(1) The uppermost beds of the Dolomite Formation.

(2) The Timeball Hill zone of the Pretoria Series.

(3) The so-called "clay-band," situated some little distance above the uppermost quartzite bed of the Timeball Hill horizon.

(4) The shales and associated rocks immediately underlying the Daspoort quartzite zone of the Pretoria Series.

They will be dealt with in order of enumeration.

1.—The Deposits of Dolomite.

Near Ashbury Siding there is a fairly considerable development in the uppermost beds of the dolomite formation of impure, earthy manganiferous ironstone, the deposit in places attaining a thickness of over 15 feet. A representative sample of this material was analysed some years ago with the following result: SiO_2 64·9 per cent. Fe_2O_3 20·0 per cent., MnO_2 2·2 per cent., AL_2O_3 2·0 per cent., MgO 3·0 per cent., moisture 7·4 per cent., total 99·5 per cent. These figures show the rock to be too poor in iron and manganese to be of value as a potential source of either metal.

The South African Coal, Iron and Steel Industries: Coke Ovens of the Dundee Company.

The South African Coal, Iron and Steel Industries: A Train Load of Newcastle Coal.

2.—The Deposits of Timeball Hill Zone.

The so-called Magnetic Quartzite of the Timeball Hill Zone occurs in two main beds of remarkable persistence that crop out conspicuously in the hills immediately south of Pretoria, of which over considerable distances they form the crests. The beds are conformably interstratified with the Timeball Hill quartzites and shales, being separated by from 95 to 150 feet of shale. The upper is the more important of the beds. It ranges in thickness from 9 to 20 feet, the average being about 12 feet. The lower bed appears to average about 4 feet in thickness, the maximum being 6 feet. Owing to the rapid removal by weathering of the soft shale underlying the ironstone, and highly resistant character of the latter, the beds are in places tilted backward—southward at the surface, the width of the outcrops being in consequence very considerably in excess of the normal widths, and thus apt to give an erroneous impression of thickness of the ore. This is well seen in the small railway cutting immediately south of Pretoria Railway Station, where the width of the outcrop of the upper bed, which is here about 10 feet thick, is fully 55 feet. As a consequence of the powerful faulting that has affected the Transvaal System in and around Pretoria, the Timeball Hill zone is duplicated over a very considerable distance, with the result that the amount of iron ore within the municipal area is enormously greater than it would otherwise be. Thus, the actual lengths of outcrop, on the Pretoria Town Lands, of the upper and lower beds of ironstone respectively are about 21½ and 21 miles. The beds dip to the north at an average angle of about 35°, and without doubt persist to far greater depths than are likely ever to be attained in mining. They underlie practically the whole of the Town Lands north of the Klapperkop Range, and the upper bed would, for example, be struck below Church Square at a depth of roughly 3,600 feet.

3. The "Clay-Band."

The "Clay-Band," a thin bed of hard agrillaceous ironstone intercalated with the shales overlying the Timeball Hill zone, crops out intermittently over a distance of fully eight miles. It probably extends right across the Town Lands from east to west, and is, like the Timeball Hill bands, duplicated over a considerable distance. As the clay-band contains the best iron ore within the municipal area, it is very desirable that prospecting pits be put down at regular intervals all along its probable strike in order to settle this very important point. The bed is well exposed to the north and east of the Forester's cottage to the south-east of the Groenkloof Plantation, where a prospecting pit was recently put down at the suggestion of Mr. T. G. Trevor. It has a thickness of 3 feet 4 inches, but owing to its low dip—about 10°—the outcrop is in places fully 60 feet in width. The ironstone, a very fine-grained, reddish brown, brown weathering rock, is much cut up by joints. Along some of these a concentration of limonite has taken place, probably by capillary attraction. Others are occupied by quartz veins. These range up to 1½ inches in thickness, and the quartz could easily be eliminated by roughly sorting the broken ore. Three samples of the rock from this locality were submitted to chemical analysis. The first of these, a general outcrop sample, was found to contain 52·5 per cent. of iron. The second, a sample taken from the prospecting pit already mentioned, assayed 51·5 per cent. The third taken from an exposure of the bed in a deep donga some hundreds of yards to the east, assayed 46·5 per cent. This sample, however, was not taken across the full stoping width, and it is probable, moreover, that at this particular spot some of the iron has been leached out of the rock. The complete analysis of No. 2, a fairly representative sample, was as follows. I. is a recalculation of the analysis, disregarding water, carbon, dioxide, etc.:—

	I.	II.
SiO_2	7·70	8·38
Fe_2O_3	73·57	80·21
Al_2O_3	7·94	8·94
CaO	0·45	0·49
MgO	0·33	0·36
P_2O_5	1·19	1·39
Loss on Ignition	8·60	—
Total	99·69	99·5
Fe	51·5	56·1
P	0·52	0·56
S	0·029	0·031

The results of this analysis prove the ore to compare very favourably with the very best grades of clay iron ore worked in Europe, America and India. Thus the clay ironstone of the Raniganj coalfield, which affords the basis of the Bengal iron and steel industry, contains only 43·4 per cent. of iron and 16·4 per cent. of silica. The specific gravity of the clay-band ore is 3·5, so that 9·18 cubic feet go to a short ton. What the precise nature of the ore will be at depth is uncertain. Judging by the character of its outcrop, it appears not improbable that there has been a superficial enrichment of iron, or, in other words, that there will be some slight falling off in iron content at depth, but this can only be determined by actual underground development. The "clay-band" also crops out conspicuously to the west of Pretoria, some little distance beyond the Police Camp. The thickness here appears to range from 18 inches to 2 feet 6 inches, and as the dip is steeper the width of the outcrop is much less than in the Groenkloof Plantation exposures. A general outcrop sample, composed of fragments of the rock knocked off at random, assayed 55·2 per cent. of iron. This is certainly somewhat in excess of the average grade.

Notwithstanding the inconsiderable thickness of the clay-band, conditions are, on the whole, favourable to its cheap exploitation. In the first place, a fairly considerable tonnage of ore is actually exposed at the surface. This could be quarried and loaded into trucks at 4s. per ton. Secondly, owing to the low dip of the bed in some localities, as, for example, to the south of the Groenkloof Plantation, a further large supply could be rendered available for cheap open-cast work by stripping the overlying shale with a steam shovel. Finally, owing to its occurrence as a hard bed intercalated with soft shales, the ore could be cheaply broken underground by resuing methods, and underground mining costs should not exceed 10s. per ton.

A HUGE TONNAGE AVAILABLE.

Owing to the lack of adequate exposures, it is impossible to give even an approximate estimate of the tonnage of the clay-band ore available within the municipal area. As the bed actually runs for a considerable distance through the southern part of the town and suburbs, only portion of it will be accessible to mining. Assuming, however, that it can be worked over a distance of 10 miles, and taking the average thickness of the bed at 18 inches, then the amount of ore available within 500 feet of the surface, measured along the dip of the bed, would be over 4¼ million tons—enough to keep a blast furnace producing 200 tons of pig-iron per week supplied for over 200 years.

4. THE IRON HORIZON BELOW THE DASPOORT QUARTZITE.

This is made up of two persistent beds of ironstone intercalated with the shales underlying the Daspoort quartzite. In the neighbourhood of Pretoria the beds attain their maximum development on the southern slopes of Struben Kop, situated some distance to the east of the municipal boundary. They are separated here by about 100 feet of shale. The upper bed, a highly ferruginous shale enclosing mud pellets, ranges up to 2 feet 6 inches in thickness. The lower bed consists of oolites, up to 1 inch in diameter, made up of alternating layers of impure haematite and chlorite around a nucleus of chlorite or quartz, set in a ferruginous sandy matrix. It has a thickness of about three feet. A representative sample of the upper bed assayed 22 per cent. or iron, and one of the lower beds 33·5 per cent. At this particular locality neither of the beds is thus sufficiently rich in iron to warrant the rock of which it is composed being described as iron ore. The deposits were not tested within the municipal area, but it appears highly improbable that they are worthy of exploitation anywhere in the vicinity of Pretoria.

These statements enable one to, in some degree, realize the immensity of the Pretoria Iron Ore Reserves, but these deposits are by no means the only important deposits in the country. South Africa, in fact, appears to have been as literally endowed by nature with iron as she has been with gold.

DUNSWART IRON & STEEL WORKS, LIMITED.

MANUFACTURERS OF
FLAT, ROUND & SQUARE BARS (IRON AND MILD STEEL),
ANGLES, etc.

Johannesburg Offices:
Southern Life Buildings,
Main Street.

P.O. Box 3921.
Telephone 1924.

BEHIND THIS DIAMOND TRADE-MARK on every genuine Jenkins Bros. Valve is the 53 years' reputation for quality products and trustworthy service.

Constant improvement to meet the varying conditions of valve practice and usage since 1864, has made possible the maintenance of the Jenkins Bros. guarantee——

"If you will put a genuine Jenkins Bros. Valve on the worst place you can find, where you cannot keep other valves tight, and if it is not perfectly tight, or does not hold steam, oils, acids, water, or other fluids longer than any other valve

—you may return it and your money will be refunded."

JENKINS BROS.

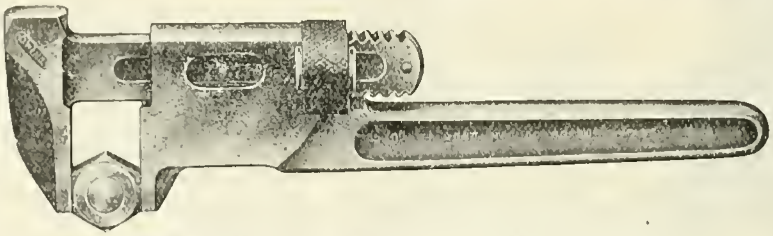
TRADE
JENKINS
MARK

Sole Agents:

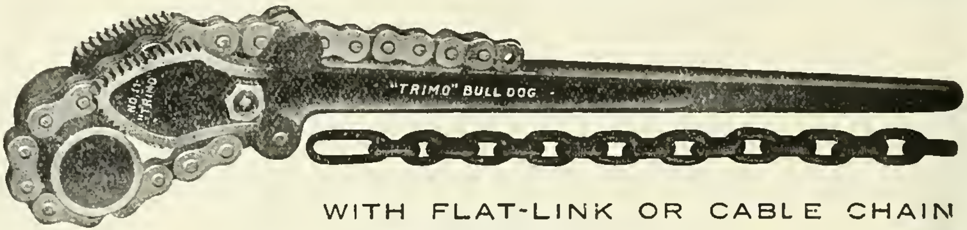
C. WHARTON HOOD & CO. (S.A.) Ltd.

TRIMO

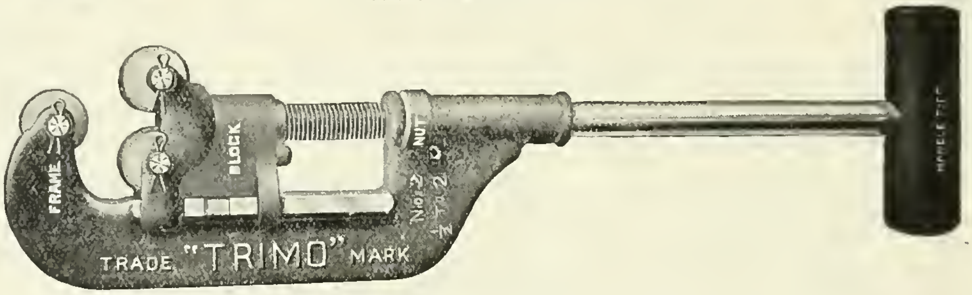
Trimo Pipe Wrench.



Trimo Monkey Wrench especially adapted for Railroads.



WITH FLAT-LINK OR CABLE CHAIN
Trimo Chain Wrench.



The word Trimo stands for good tools made by the Trimont Mfg. Co., which are the following:—

The Trimo Pipe Wrench
The Trimo Monkey Wrench
The Trimo Chain Pipe Wrench
The Trimo Pipe Cutter (Hand)

The four good points that make **Trimo Pipe Wrenches** superior are the **Spiral Spring** always in place—**Steel Frames** that will not break—**Nut Guards** that protect adjustment nut—and the **Inserted Jaw** in handle that can be replaced when worn—**Save Money** and buy Trimo goods.

TOOLS

GRIQUALAND WEST IRON ORES.

Tremendous Haematite Deposits in the Blink Klip Breccia—Prospects of Development.

One of the largest iron ore deposits in South Africa, and, perhaps, in the world, occurs in the Griqualand West District of the Cape Colony. In that region there is a ferriferous zone of very great magnitude, extending from the neighbourhood of Prieska through the Hay District, and on towards Kuruman. Geologically this tremendous development of iron ores may be described as a haematite zone in the Blink Klip Breccia of the Griquatown series. These ores are to be found in the vicinity of the new diamond fields around Postmasburg, in which area they occur in kopjes, familiarly known as the Iron Mountains. The character of the formation tends to strengthen the view that profitable deposits of iron occur in the district, for the highly ferruginous nature of the rocks which cover a wide stretch of country between the Orange River and Griquatown, to the north-east, and beyond that towards the north, is one of the first geological features to attract the observation of travellers in that somewhat dreary region.

The Griquatown Series.

The Transvaal system, which owes its name to the large development of Black Reef, dolomite and Pretoria quartzites and shales which constitute a prominent and wide-spreading group of rocks in this Province, is well represented in this district. Above the limestones and dolomite limestones of the Campbell Rand, well known to those who journey westward from Schmidt's Drift on the Vaal River, come the jaspers, cherts, sandstones, quartzites, and other strata of the Griquatown series, corresponding, as far as the geological horizon is concerned, to the shales and quartzites of the Pretoria series of the Transvaal area. It is this group of strata which is so characteristically permeated with magnetite and hydrated iron oxides, in which these iron ores are to be found. In discussing a particular sample of the banded black, brown and white magnetic rock which is so commonly found in the lower group of the Griquatown series, Dr. Rogers, of the Cape Geological Survey, stated that it contained a large amount of colourless or slightly yellow-stained cherty material, made of very small quartz individuals, which overlapped each other, and were intricately interlocked. Through this ran lines along which the iron ores were concentrated. The lines were the lamination planes of the rock seen in section. The iron existed in two forms, magnetite and an opaque brown ore. It was considered likely that carbonate of iron (siderite) was once a constituent of the rock, and that at least part of the iron ores now forming a considerable portion of the rock were due to an alteration of the iron compounds originally in the deposited sediments. A difficult question that arose was whether all the brown oxide present was a direct result of changes in the carbonate of iron supposed to have existed formerly, or whether some or all was not due to the oxidation and hydration of the magnetite.

Iron Ore Deposits.

Obviously the existence of so large a percentage of iron in the sedimentary strata has been favourable to concentration, and to the leaching action of ground water followed by re-deposition of which so many evidences are to be seen in the vicinity of those Griquatown beds. At Blink Klip Kop, for instances, a hill near Potsmasburg, large masses of haematite are found in a cavern which was dug by natives into a limestone breccia at some unknown period. The breccia results from the caving in of a portion of the limestone in which it is found, and the fragments of the original rock are mingled with masses of the haematite, which was evidently the object of the natives' search. It is doubtless from such sources as this that the purest ore bodies will be obtainable. The conditions under which secondary deposits of iron ore are likely to be found in Griqualand West country are likely to be very numerous, some of which may be sufficiently promising to warrant mining operations upon a large scale.

It may be recalled that in 1913 these deposits were directed attention to in the House of Assembly, and Sir Lionel Phillips declared in Parliament that they were of such magnitude and promise that they might prove a factor of first-rate importance in the development of South Africa.

Since then nothing has been done to draw further attention to these ores, but with the establishment of an Iron and Steel Industry in South Africa and the prospect of a railway being built to Postmasburg, in the near future, it is probable that the day is not far distant when these deposits will again engage a great deal of attention.

African Banking Corporation, Ltd.

Authorised Capital - - - £2,000,000
Subscribed Capital - - - £2,000,000

Paid-up Capital - - - £1,000,000
Reserve Fund - - - £ 360,000
Reserve Liability of Shareholders - £1,000,000
£2,360,000

Head Office: 63, London Wall, London, E.C.

☞ Branches throughout South Africa and Agents and Correspondents throughout the World.

SOUTH AMERICA

Head Office:
Montreal, Canada

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE — Buenos Aires.
BRAZIL — Rio de Janeiro, Santos, Sao Paulo.
URUGUAY — Montevideo.
VENEZUELA — Caracas, Ciudad Bolivar, Maracaibo, Puerto Cabello.
COLOMBIA — Barranquilla.
BR. GUIANA — Georgetown, Rose Hall, New Amsterdam.

Also 77 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

590 Branches throughout CANADA & NEWFOUNDLAND

LONDON — Princes St., E.C.
PARIS — 28, Rue du Quatre-Septembre.
NEW YORK — 68, William St.
BARCELONA — Plaza de Cataluna 6.

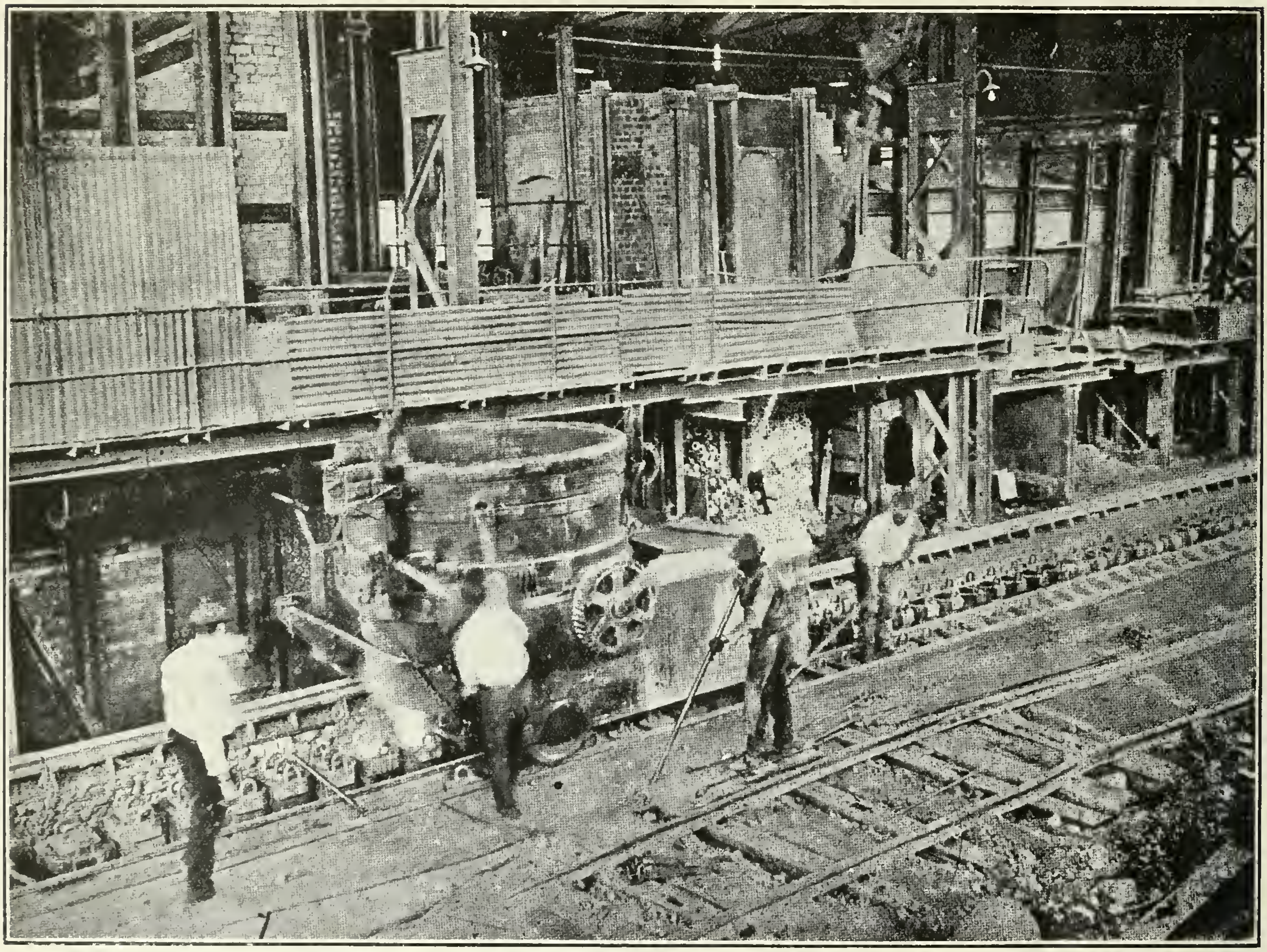
THE ROYAL BANK OF CANADA

Capital Paid Up & Reserves $35.000,000
Assets over - - - $560.000.000

THE UNION STEEL CORPORATION (OF S.A.) LIMITED.

The Great Works at Vereeniging—South Africa's First Successful Steel Melting Furnace—How the Corporation Rendered National Service—A Description of the Works and Process—South African Iron from South African Ores—Our Future Birmingham.

In the year before the outbreak of the Great War, the Union Steel Corporation commenced operations at Vereeniging with a 12 in. Merchant guide mill, Siemens gas fired mill furnaces, and a 12 ton new form Siemens open hearth steel furnace. This was the first successful steel melting furnace in South Africa. The steel was cast in ingot moulds and forged down under a Davey high-speed steam-hydraulic press of 600 tons capacity, and then rolled into merchant bars, angles and light rails. Later a 20 ton open hearth steel furnace was erected and a 15 in. Merchant mill and a 22 in. 3-high cogging mill. All these mills are electrically driven. There is now also a Heroult electric furnace at work.



Teeming the Molten Steel into Ingot Moulds at the Union Steel Corporation Works, Vereeniging.

When Messrs. Lewis & Marks, in conjunction with the late Mr. H. Wright, founded the undertaking at Vereeniging the shadow of the Great Holocaust in Europe had not fallen across the world. South Africa imported practically all her iron and steel goods from overseas and appeared to imagine that she would always be able to do so. But almost immediately after the outbreak of hostilities it became apparent that overseas supplies would not be available in any adequate quantities. So the Union had to fall back on her own resources and in this way good has come even out of such an appalling business as the World War; the Union has begun to develop an iron and steel industry.

Sir William Hoy, the General Manager of Railways and Harbours, in November, 1915, stated that the Imperial Authorities as indicated by the Minister of Munitions, South Africa, could best assist the Imperial Government during the War by meeting so far as possible its own requirements, more particularly of an engineering nature, and relieving the Home manufacturers, thereby enabling them to devote themselves more closely to increasing the output of munitions. The Union Steel Corporation rose to the occasion, they having supplied to the South African Railways and the Public Works Department, since that date, thousands of tons of steel made to British standard specification, of various sizes and sections. They have also supplied many tons of steel castings, and the demand for castings due to the results obtained, has necessitated the building of a well-equipped steel foundry, just completed, which enables the Corporation to produce castings of open hearth steel up to 20 tons each and castings from electric steel up to 3 tons each.

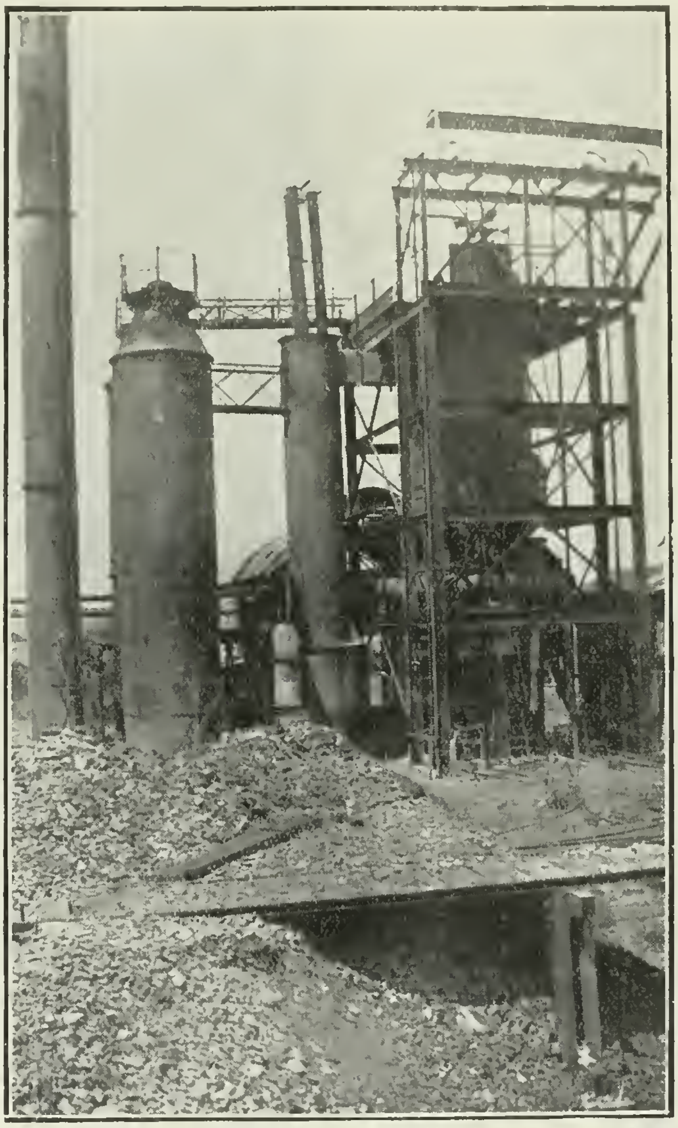
For the Public Works Department the Corporation have supplied the reinforcing rods for nearly all the bridges constructed in South Africa during the last five years, included amongst which are the bridges at Parys, Buffalo River Bridge, Ohrigstad Bridge, Hol Spruit Bridge, Great Marico Bridge, Elands River Bridge, Isplelo River Bridge, Umfolozi River Bridge, Tee Kee River Bridge, Mooi River Bridge, Tendega River Bridge, Broederstroom Bridge, etc. Samples of the steel for the bridges are selected at random by the Public Works Department engineers, from the bars when rolled, and are tested at the works in their presence for tensile, elongation and cold bending without fracture.

For the mines the Lewis and Marks enterpr'se has supplied tube mill bars of high carbon steel, rails weighing 16, 20, 25 and 30 lbs. per yard, fish plates, sleepers and angles, flat, round, and square bar steel, steel castings weighing up to six tons each, crusher parts, engine parts, transmission machinery, skip wheels, truck wheels, etc. In the early part of 1919, the Corporation received a contract from the mines of the Witwatersrand for the supply of 10,000 tons of shoes, dies, rails and tube mill bars, to be supplied at the rate of 300 tons per month, and for this purpose installed one of the latest types of electric smelting arc furnaces, for the production of shoes and dies, and are now arranging to forge the shoes and dies after casting by means of a 600 ton hydraulic press.

The Works and the Plant.

Union Steel Corporation; A General View of the Works.

In the past the Corporation have produced their manufactures from the accumulated scrap metal of the railways and mines, but of late they are utilising the pig iron obtained from the blast furnace smelted from South African iron ore, using South African fuel, viz., "coke," and fluxed with South African limestone. The use of South African pig iron for the production of steel is to be extensively developed and is a matter on which the Directors and manager have been actively engaged. The raw material is charged into Siemens open hearth smelting furnaces, of which there are two, with a capacity of 30 tons per charge, the furnaces being charged three times in 24 hours. The charge, that is to say, the material in the furnace, is usually made up of scrap and pig iron fed in the ratio of the chemical contents of the metal, or the character of the steel it is desired to produce; in a sentence, the basic process removes or reduces the allowable contents of carbon, silicon, manganese, sulphur and phosphorous elements, the presence of which determines the durability of the steel; they differ in quantity, according as to whether hard or mild steel is required, mild steel having a carbon content of 0·1 to 0·2 per cent. and high carbon steel with a carbon content of from 0·65 to 1·0 per cent. Frequent trial tests of the steel whilst in its molten state are made in the Laboratory, until the desired composition is acquired. The furnace is then tapped by breaking through a clay hole at the bottom of the hearth. Bursting through the tapping hole with a roar, the liquid steel, bubbling at a white heat, careers along a channel, flows out at the end into a big steel ladle, lined with fire-brick and mounted on a carriage.



The Blast Furnace of the Union Steel Corporation at Vereeniging.

Having produced the quality of steel required, the next process is to turn the steel into ingots of a size convenient for working up into "blooms" and "billets." To achieve this ingot moulds are arranged in a row in the casting pit. The ladle of 20 tons of molten steel is traversed over the ingot moulds, and, by means of a valve at the bottom of the ladle, and worked from a lever, each mould is filled with the metal The steel ingots, when set, are removed from the moulds and stacked ready for use when required; the ingots are numbered and a record is kept of the analysis of the charge from which they were cast. The next stage of the performance is the reheating of the ingot for rolling into steel billets. The rolling is done in a 22 in. cogging mill, the rolls gripping the ingot, under an enormous pressure, gradually rolling it down from its original size to between 40 and 50 feet long—it depends for what purpose the billets are wanted, either rails, bars, rounds, squares and flats or angles. The billets are then cut to standard lengths, they are again reheated and are ready for the finishing mills, of which there are two—a 15in. mill for the heavier sections and a 12in. mill for the light sections. These mills consist of three and four stands of rolls with three rolls in each stand. The billets are compressed between the various passes turned in the rolls, until they are formed into the required sections. They then pass from the rolls, still red-hot, to a high speed circular

ALLEN WEST & CO., Ltd.

BRIGHTON, ENGLAND.

CONTROL GEAR.

A.C. & D.C. Contactor Control Gear.

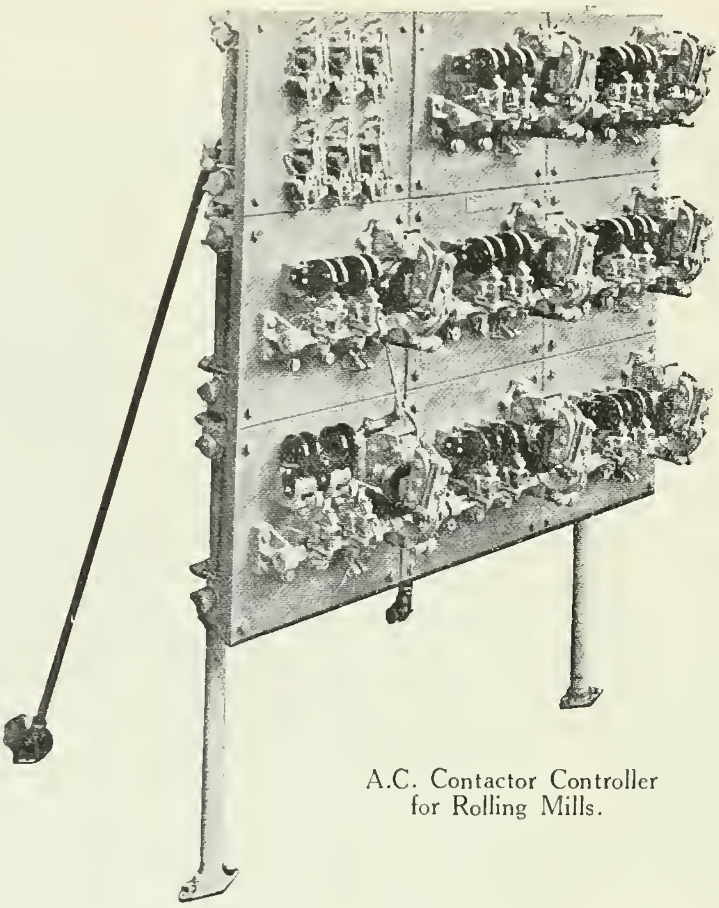
Liquid Starters.

A.C. & D.C. Starting Panels.

Auto Transformer Starters.

Iron Clad Switchgear.

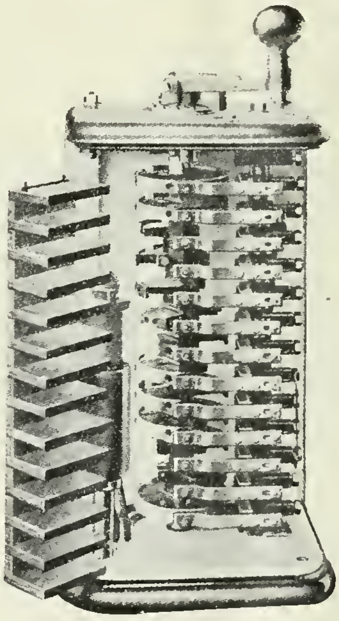
Lifting Magnets.



A.C. Contactor Controller for Rolling Mills.

Patent Unbreakable Stamped Grid Resistance Grids.

H.T. Control Gear, etc.



Barrel Starter.

STOCKS IN JOHANNESBURG.

Representative for Africa: **SYDNEY THOMPSON,** A.M.I.E.E.

42, Commercial Exchange Buildings, Johannesburg.

P.O. Box No. 4743, Johannesburg.

Cables: "SWITCHGEAR," Johannesburg.

CAPE TOWN and DURBAN.

saw, with which they are cut to the desired lengths. The foundry in which the steel castings are made is adjacent to the melting shop. Moulds are made either of sand, or cast-iron moulds called "chills" are used. The sand moulds are rammed on to wooden patterns of the desired form, and when completed the molten steel is poured into the mould; when cold, the sand is broken away from the castings, which are then dressed of "fins" and "runners." They are then annealed in an annealing furnace for from 3 to 6 days. The process of annealing consists of gradually and uniformly heating up to temperatures depending upon the composition of the metal, and varying between 1,200 and 1,600 degrees Fahrenheit, kept soaking at the maximum temperature for a time, determined by their size, and allowed gradually to cool, without exposure to air. When cold the necessary test pieces are cut from them and machined accurately to the required size. These specimens are then broken or bent in the testing machine according to the specification prescribed. The tensile strength of high-class steel castings varies from 65,000 to 80,000 pounds per square inch. The percentage of elongation in two inches varies from 15 to 18 per cent., and the reduction of area from 20 to 25 per cent. The finished products are loaded into railway trucks on the Corporation's own siding for conveyance to their destination. The Union Steel Corporation have supplied some thousands of tons of rails to the collieries in the Transvaal, Natal Rhodesia, and to the sugar estates in Natal, also reinforcing steel rods for many public buildings. At the present time they are executing an order for the New Ford Service Station of the Motor Corporation of South Africa, which is to be a three-storey building with basement, occupying a whole block at the south end of Eloff Street, and is to have a flat roof capable of serving as a landing for aeroplanes. Another important product which the Corporation is manufacturing is steel guides for the Brakpan Mines shafts. A 22 in. cogging mill and special moulds have been installed to turn out this product and the steel guides weighing 15 lbs. to the foot are being supplied to the Brakpan Company.

The Kromdraai Deposits.

What will be of inestimable value in establishing a permanent steel industry in South Africa is the exceptionally rich deposit of iron ore on the farm Kromdraai, near Warmbaths. That the iron ore at Kromdraai is of phenomenal richness has been proved by repeated assays of stone from all parts of the deposit, and from actual experience in the blast furnace. The metallic contents of the ore hardly vary throughout the enormous mass. It yields on an average 66 per cent. of metallic iron, a percentage the value of which will be appreciated by the layman, when it is stated that ore having more than 25 per cent. of iron (provided fluid and fuel be accessible) would in older countries promptly engage the attention of ironmasters. The most important British ore deposit is the lower Cleveland, near Middlesborough, in the north-east of Yorkshire; it is from 10 to 17 feet thick and contains about 30 per cent. of iron. Compare this with a 66 per cent. of Kromdraai ore. The Cleveland ores are worked profitably because of their proximity to the Durham coalfields. In the United States are the Red Hemitite deposits, near Lake Superior, which yield 50 per cent. to 55 per cent. of iron, and it pays well to rail this rich ore 1,000 miles to the cheap coal of Pittsburg. Germany, prior to the War, received about two-thirds of her total ore supply from the Great " Minette " ore deposit of Luxemburg and Lorraine, which reaches also into France and Belgium. In spite of its containing only 36 per cent. of iron, this deposit is of distinct value because of its great size and the consequent small cost of mining. It stretches through an area of about eight miles wide and forty miles long, and in some places it is nearly sixty feet thick. Sweden, Spain, Russia and Austria-Hungary have abundant and very pure iron ores, but the best of them do not exceed in richness the deposit at Kromdraai. To make a ton of pig iron, the United States needs within a fraction of two tons of ore. Two tons are required in Sweden and Russia, 2·4 tons in Great Britain and Germany, about 2·7 tons in France and Belgium, while about three tons of the native British ores are required per ton of pig iron. The superiority of Kromdraai ore is shown in the statement that 1·7 tons of stone will produce a ton of pig, which means a considerable saving in coal and flux. The Corporation will be able to obtain its ferro-chrome and ferro-manganese from the rich deposits of the chrome and manganese ores in South Africa.

It will readily be understood from the foregoing that the Union Steel Corporation has established at Vereeniging an industry of the utmost importance to South Africa.

This enterprise has rendered, is rendering, and will continue to render service of national importance and it deserves well of the Government and the country at large. The day is assuredly coming when Vereeniging will be the Birmingham of South Africa and when the town on the Vaal has grown into an immense manufacturing centre posterity should not forget the men who by their foresight and courage compelled South Africa to realise her ability to produce her own iron and steel without which no country can attain to the highest pinnacle of prosperity and importance.

Mr. Rudyard Kipling's Tribute to Iron.

Gold is for the Mistress—Silver for the Maid!
Copper for the Craftsman, cunning at his trade;
" Good!" said the Baron, sitting in his hall,
" But Iron—Cold Iron—is master of them all!"

The Iron Resources of Rhodesia.

Rhodesia contains enormous reserves of iron ore, particularly of the chrome variety, and Mr. F. P. Mennell, F.G.S., M.I.M.M., writing on the possibility of an iron industry in Rhodesia, after reviewing the ore occurrences, says:—" Whatever the situation as regards ore supplies, everything points to the country between the Sabi and Lundi rivers as the best site for smelting works. Coal is available in large quantities over a wide area; some of it, it is true, is of poor quality, but there is at least one section of the coalfield which has been shown to have excellent coal. It has other advantages in the fact that native labour is abundant, and that cattle live and thrive, which is an important consideration as regards conditions of living for white employees. All the northern part of Mashonaland is placed out of the running by the fact that there is no coal between the ore deposits and the sea along any direct railway route. The Sabi area, on the other hand, is about as near the coast as we can get without going outside our territory, and all experience shows that it is better to smelt where the coal is obtained than to bring coal to the iron mines. Even if the ore close at hand proves of inferior quality, it could be economically brought to the smelters even from the farthest off of the deposits that have been mentioned."

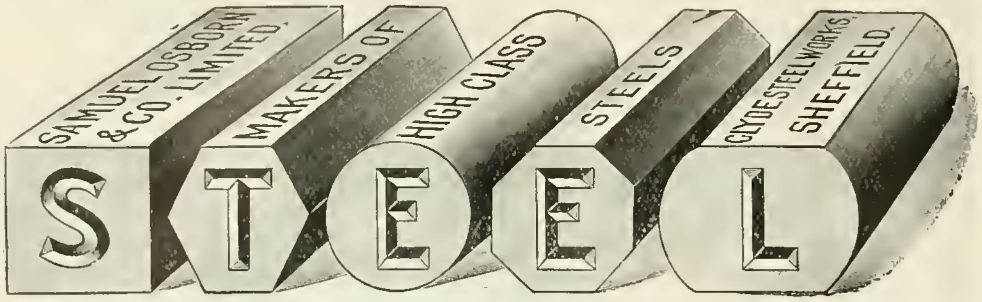
The annual report of the Otis Steel Company, U.S.A., for the year 1919 shows net profits of $992,862. Preferred dividend payments aggregated $203,771, leaving for the common stock $789,118, equivalent to $1·91 a share on the 411,668 shares of outstanding common stock.

A recent Bulletin of the Comité des Forges de France reports that the output of pig-iron in France in 1919 aggregated 2,412,149 metric tons, including 55,422 produced in electric furnaces (chiefly in the South). Of this total 1,904,872 tons were phosphoric pig-iron (containing over 0·1 uer cent. of phosphorus), 449,636 tons were haematite (0·1 per cent. phosphorus or less), and 57,641 tons special pig-iron such as spiegel, ferro-manganese, ferro-silicon, and others. The figures given for the output of phosphoric and haematite pig-iron include direct castings and also castings of cupola second melting.

OSBORN'S

"HAND & HEART" Brand.

"HAND & HEART" Brand.



When YOU purchase from us YOU purchase direct from the Manufacturer,

Will you send us your next inquiry? Large stocks held in Johannesburg. We are specialists in Steel Products.

"HAND & HEART"
TOOL STEELS.

SPECIALITIES:

STEEL DEPARTMENT.

- MINING DRILL STEEL (hollow and solid).
- "MUSHET" HIGH-SPEED STEEL.
- CARBON TOOL STEELS.
- ALLOY STEELS (for motor car work, etc.).
- SPRING STEEL, STEEL PLATES AND RAILS.
- STEEL (turned), SHAFTING, GRIZZLEY BARS.
- COAL AUGER STEEL, SHOES AND DIES.
- "KEYSTONE" (stamped steel) BELT PULLEYS.

CASTING DEPARTMENT.

- TOUGHENED STEEL CASTINGS (all descriptions).
- TRUCK WHEELS AND AXLES, SKIP WHEELS AND PULLEYS.
- "DALY" TAPPETS, GEAR WHEELS (cast or machined).
- "TITAN" MANGANESE STEEL.
- CRUSHER JAWS, MORTAR BOX LINERS, Etc

TOOL DEPARTMENT.

- "MUSHET" HIGH-SPEED TWIST DRILLS, REAMERS, Etc.
- DRILL SLEEVES, "BOW AND ARROW" HAND FILES.
- PICKS, HAMMERS, SHOVELS, FORKS AND HANDLES.
- HACK SAW BLADES, CIRCULAR AND BAND SAWS.
- COAL AUGERS AND TUB GREASERS.

"TITAN" Manganese and Toughened
STEEL CASTINGS.

SAMUEL OSBORN (S.A.), Ltd.,

CLYDE STEEL WORKS,
SHEFFIELD.

Associated with SAMUEL OSBORN & Co., Ltd., Clyde Steel Works, Sheffield.
JOHANNESBURG OFFICE & STORES: HOSKEN'S BLDGS., FOX & RISSIK STREETS.
P.O. Box 3162. Telephone 4673. Telegrams: "MUSHET."

THE SOUTH AFRICAN IRON AND STEEL CORPORATION, LIMITED.

A Million and a Half Flotation with Wonderful Prospects—The Vast Iron Resources of the Pretoria Town Lands—How Mr. Delfos Triumphed and How the Capital City is to Become a Big Metalliferous Centre—The Technicalities of Steel Making—Most Favourable Conditions—A Modern Plant and an Ambitious Programme.

The recent flotation of the South African Iron and Steel Corporation, Ltd., with a capital of a million and a half, and an influential Board of Directors, marks a most important development in the history of Iron and Steel enterprises in South Africa. The nominal capital of the South African Iron and Steel Corporation, Ltd., is £1,500,000. The assets of the Pretoria Iron Mines, Ltd., are taken over for 200,000 shares in the merger concern. According to a statement made in London by Mr. Delfos, a substantial share participation is reserved for oversea interests, but if not so disposed of, will be issued to the public in South Africa.

Stacking Iron Ore on the Pretoria Town Lands.

One of the Corporation's Open Workings.

The headquarters of this important company, its plant and main iron ore deposits are all centred in and around Pretoria. At this date it may seem something of a fanciful prophecy to predict that the Capital City will, within its own boundaries, be a producer of mineral wealth on a very large scale when Johannesburg has waned as a metalliferous centre. Yet when one comes to examine the prospects of such an event fructifying in the fulness of time, the prophecy is well within the bounds of probability.

The Birth of the Enterprise.

The South African Iron and Steel Corporation had its beginnings in a humble manner under the auspices of the Pretoria Iron Mines, Ltd. The industrial enterprise which has been fostered by the necessities of the War and its aftermath, has led to many developments of a useful kind in the Union, but none are to be compared in point of potential value to the inauguration of an iron industry which should prove the first step to manufacturing activity and engineering achievements that can alone raise South Africa to its proper level among the productive nations of the world. The credit of this development is due to a few engineers, scientists and men of business who undertook the construction of a blast furnace equipment to treat the vast deposits of iron ore which lie upon and adjacent to the Town Lands, Pretoria. The first blast furnace of the Pretoria Iron Mines, Ltd., was blown in on the 15th July, 1918, and after running in an experimental way for a short period, was enlarged and restarted on the 18th March, 1919. A very good quality of pig iron was produced, and generally the results of the undertaking have been most gratifying. Most of the difficulties which presented themselves at the outset—which were, after all, only to be expected—were soon overcome, and the company achieved the first stage of what promises to be an entirely successful enterprise. The ores treated comprise a bedded deposit of great extent in the magnetic quartzites of the Pretoria series, and a clay-band from the same series. In combination the highly siliceous character of the one is counter-balanced by the more basic quality of the other. Coke was obtained from Natal and lime from Taungs, in Bechuanaland, and later from a quarry within six miles of Pretoria.

REUNERT & LENZ, LTD.,

MECHANICAL AND ELECTRICAL ENGINEERS AND CONTRACTORS.

COMPLETE POWER PLANTS SUPPLIED AND ERECTED.

INSTALLATIONS IN SOUTH AFRICA.

Over 380,000 H.P. in "BABCOCK" Patent Water Tube Boilers, of which Over 210,000 H.P. fitted with "BABCOCK" Patent Chain Grate Mechanical Stokers—Highly Economical, Self-cleaning and Smokeless.

Over 240,000 Cubic Feet Capacity of "BELLISS" Vertical Enclosed Forced Lubricated Air Compressors, and

Over 100,000 H.P. in "BELLISS" Vertical Enclosed Forced Lubricated Quick Revolution Engines and Steam Turbines.

Over 6,000,000 Cubic Feet per Minute Capacity of Davidson "SIROCCO" Mine Ventilating Fans in addition to Small Fans for Auxiliary Ventilation.

Sole Agents for the following Manufacturers' Specialities:—

Simon-Carves Bye-Product Coke-Oven Construction and Working Co., Ltd., Manchester,

Coke Ovens, Tar Distilleries, Coal Washing Plants, Etc.

Babcock & Wilcox, Ltd., London and Renfrew.—Patent Water Tube Boilers, Chain Grate Stokers, Coal and Ash Conveying Plants, etc.

Belliss & Morcom, Ltd., Birmingham.—Steam Turbines, Quick Revolution Steam Engines, Air Compressors, Condensing Plants, etc.

Davidson & Co., Ltd., Belfast.—"Sirocco" Fans.

Frank Pearn & Co., Ltd., Manchester.—Plunger Pumps.

John Stephens & Son, Ltd., Falmouth.—Wire Ropes.

North British Locomotive Co., Ltd., Glasgow.—Railway Locomotives.

Leeds Forge Co., Ltd., Leeds.—Railway Wagons, Coaches, etc.

Richards, Ltd., Aberdeen.—Tarpaulins.

The Newlay Wheel Co., Ltd., Leeds.—Coach, Tram and Wagon Wheels.

Glacier Anti-Friction Metal Co., Ltd., London.—Anti-Friction Metal, etc.

Douglas & Grant, Ltd., Kirkcaldy.—Winders.

Cape Explosives Works, Ltd., Somerset West, C.P.—Explosives, Fuse Igniters, Sheep Dip, etc.

Cape Asbestos Co., Ltd., London.—Boiler and Steam Pipe Covering, etc.

Delfos, Ltd., Pretoria.—Rock Drill Spares.

Monkbridge Iron & Steel Co., Ltd., Leeds.—Steel Tyres, Yorkshire Iron, etc.

E. & W. Lucas, Ltd., Sheffield.—Shovels and Picks.

Ewart's Chain Manufacturing Co., Derby.—Elevator and Driving Chains.

Coventry Chain Co., Ltd., Coventry.—Machine Driving Chains.

Cravens, Ltd., Sheffield.—Railway Carriages & Fittings.

W. S. Laycock, Ltd., Sheffield.—Automatic Couplers, Vestibules, etc.

"Atlas" Rockdrills.

Ransomes & Rapier, Ltd., London.—Sluice Gates, Refrigerating Machines, etc.

John Spencer & Sons, Ltd., Newcastle-on-Tyne.—Steel Castings.

United Kingdom Self-Adjusting Anti-Friction Metallic Packing Syndicate, Ltd., Liverpool.—Packings, Lubricators, etc.

Workington Iron & Steel Co., Ltd., Workington.—Steel Rails, etc.

J. P. Hall & Sons, Ltd., Peterborough.—Boiler Feed Pumps, etc.

Henry Simon, Ltd., Manchester.—Grain Handling Plant,

Large Stocks of General Engineering and Mining Requisites carried.

Consolidated Building,
(Third Floor) Fox Street,

JOHANNESBURG.

Telegraphic Address: "ROCKDRILL."
P.O. Box 92.
Telephone 3061, Private Exchange.

Six Months of Production.

The Pretoria Iron Mines, in six months of working, produced about 2,000 tons of pig and found a ready demand for its product. In its initial operations difficulties were naturally enough encountered. For instance it was found necessary to elevate the furnace and it has been built and strapped up 20 feet from 37 to 57 feet. In its improved form its capacity is substantial and the quality of iron produced is of the very best.

A Most Modern Plant.

Operations of the Company are at present in the transition stage; the proposition is chrysalising from the state of initial enterprise into the larger magnitude of one of the foremost industrial assets of the country. New plant is required to supplement the experimental but wholly admirable installation already erected.

A Rich Band of Iron Ore on the property of the South African Iron and Steel Corporation, Ltd.

Coke Ovens at the Works of the South African Iron and Steel Corporation, Ltd.

The Foresight of Mr. Delfos.

The credit for the establishment of such an industry at the Capital City must undoubtedly go to Mr. C. F. Delfos, of Pretoria. As long ago as 1906, or even earlier, he conceived the idea of such an industry or group of industries. Such a possibility, however, was deemed to be too good to be true, and he was laughed at. In the face of many discouragements, he urged the serious consideration of his idea, but he continued to meet with half-hearted support. In 1917, however, Dr. P. A. Wagner and Professor G. H. Stanley, in an authoritative report prepared at the instance of the Pretoria Municipality, confirmed the correctness of Mr. Delfos' contentions, and he succeeded in floating the "Pretoria Iron Mines, Ltd.," with £25,000 as its capital. Not long after, the capital was increased to £100,000. A 37-foot blast furnace was erected on ground leased from the Municipality about two miles to the west of the city. With this small furnace, Mr. Delfos and his associates successfully demonstrated the practicability of producing iron at Pretoria, and the experience thus gained has been such as to justify the formation of the larger company with a capital of £1,500,000 to develop the iron and steel industry on the Pretoria fields. At the present time Mr. Delfos is visiting Europe and America in connection with the preliminaries essential to the establishment of such an industry.

The Corporation's Ore Reserves.

The area leased by the Corporation on the Town Lands is estimated to contain over 16,800,000 tons of siliceous ironstone capable of open-cast and adit mining, together with 12,000,000 tons falling within the limits of underground mining. This gives a total of over 28,000,000 tons, or, allowing 31·5 per cent. for pillars and patches of low-grade ore, approximately 20 million tons, probably averaging in

ARMSTRONG

THE
REMARKABLE
NEW

A.W.
SUPER
PREMIER

HIGH
SPEED
TOOL
STEEL.

ALLOY STEELS
For Special Purposes.

TWIST DRILLS, TAPS & DIES.
H.S.S. HACK SAW BLADES.
MILLING CUTTERS and HOBS.

* * * *

EXTRUDED BRASS SECTIONS.
BRASS & COPPER SHEETS & WHITE METAL.

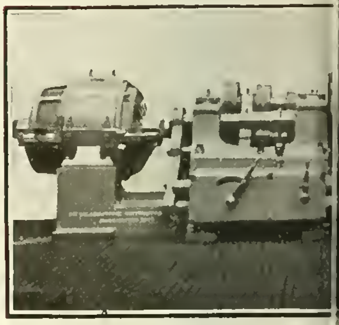
LOCOMOTIVES FOR ALL PURPOSES.

ARMSTRONGS & MAIN LTD., Corner MARSHAL
JOH

P.O. Box 5988,

TRADE

MACHIN
OF EVERY

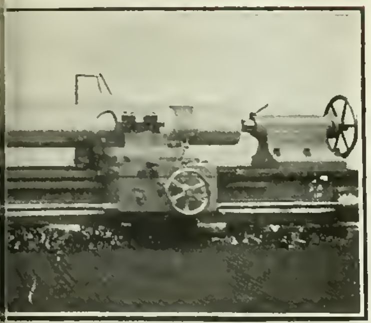


HEAVY E
Removing 2,545lbs
with "A

SOUTH A

MARK

TOOLS
CRIPTION.



INE LATHE
Forged Steel per hour
Tool Steel.

A GOOD
STANDARD
STEEL AT A
LOW PRICE.

CAN AGENTS:

SIMMONDS STREETS,
NNESBURG.

WHITWORTH

WINDING ENGINES,
AIR COMPRESSORS,
PIT HEAD GEAR,
COAL HANDLING GEAR.

* * * * *

STRUCTURAL WORK
OF EVERY DESCRIPTION.

* * * * *

PNEUMATIC TOOLS.

COAL
CUTTER
STEEL

C.C.S.
BRAND.

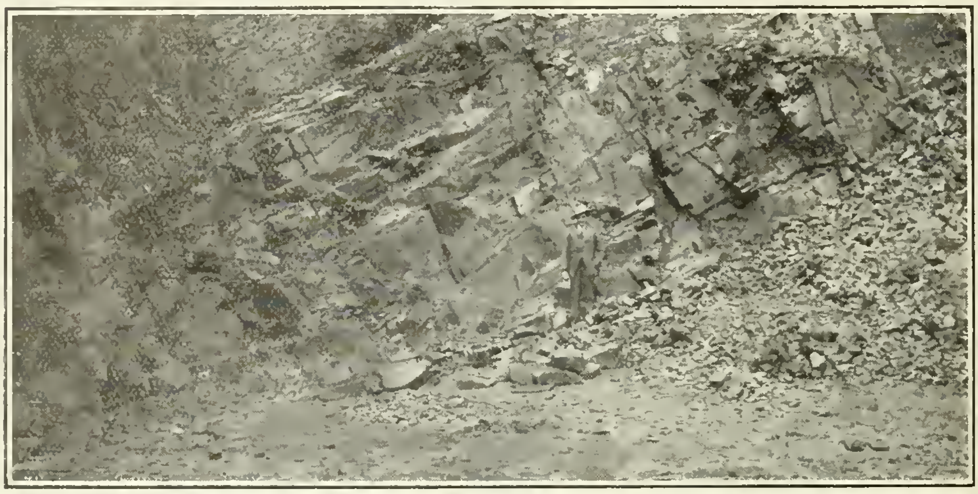
the neighbourhood of 48 per cent. of iron. On the basis of an output of 200 tons of pig-iron per day, this quantity is sufficient to keep the furnaces of the company supplied for 125 years.

The whole of the Pretoria Town Lands lying to the west and south are underlain by the siliceous ironstone; and, if permission were obtained from the Municipality to follow the bed, the available reserve could be enormously increased, as every square mile of ground underlain by the bed represents over 30 million tons of ore.

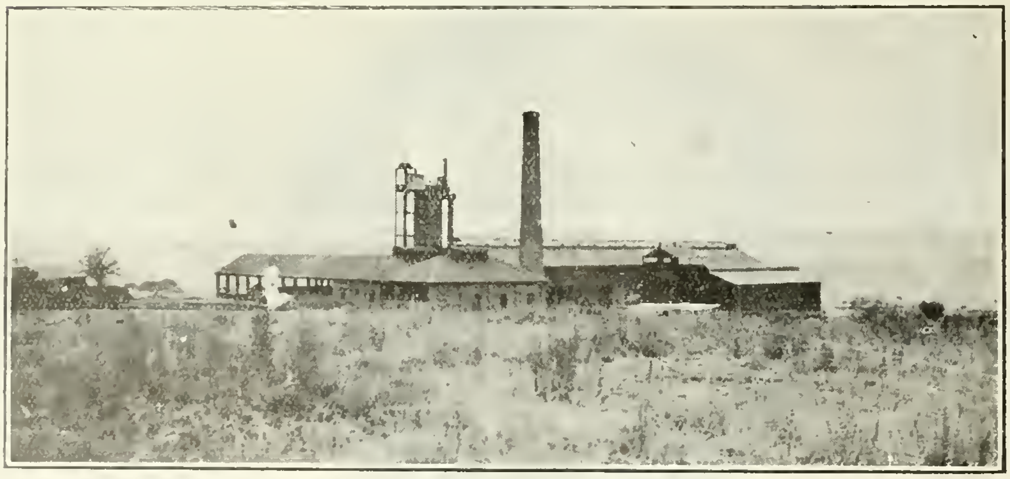
In addition, the Company has reserves of clay-band ore, to the extent of over 2½ million tons, probably averaging 50 and 55 per cent. of iron.

To the producer of pig iron and steel the possession of a variety of iron ores is an essential factor, and the South African Iron and Steel Corporation, in addition to its vast reserves of ore on the Pretoria Town Lands, has acquired rights over enormous deposits of Bessemer-grade hematite ore of exceptional purity, of nodular ferriferous manganese ore, and of titaniferous magnetite, whilst an option has also been secured over a large deposit of chromite.

Quarrying Rich Iron Ore on the Pretoria Town Lands.



A Cutting into the Iron Ore on the Pretoria Town Lands.



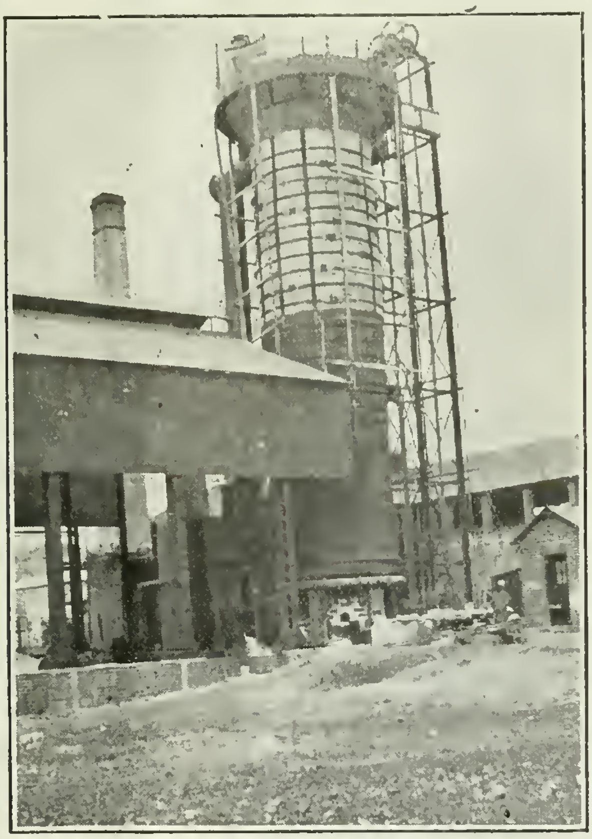
A General View of the Works of the South African Iron and Steel Corporation at Pretoria.

The Coke Question.

The Pretoria Iron Mines, in its initial stages, met with various difficulties in the matter of securing coke. The product of the Bernica Mine in the Vryheid District has, however, given good results, but experimental ovens, which are illustrated in our photographs, have been installed and it will be the policy of the Corporation to instal other ovens and produce coke from coal derived from Transvaal sources. In this connection, it may be remarked that the Corporation has secured most important options which cannot fail to yield very satisfactory results.

Fluxes.

As to flux, limestone is the material generally used, and at first the Pretoria Iron Mines purchased limestone from Bechuanaland. But in South Africa there appear to be but three really extensive occurrences of pure limestone suitable for metallurgical purposes. These deposits are either a considerable distance from Pretoria, or are for the time being commercially inaccessible in other ways. Fortunately, however, it has been demonstrated that dolomite is quite as satisfactory for fluxing purposes as limestone, provided that the surphur content of the coke is kept within reasonable limits. The present blast furnace erected by the Pretoria Iron Mines, Ltd., was actually run for months on dolomite, and not the slightest difficulty was experienced in producing iron of satisfactory quality.



South African Iron and Steel Corporation:
"The Blast Furnace."

Dolomite exists in unlimited quantities. Only nine miles from Pretoria there are huge reserves of this material, whilst there are four other known occurrences (which are being exploited by as many limeworks companies) on the railway line between Pretoria and Johannesburg. In all these five deposits, the dolomite (which is chert free) is regarded as perfectly satisfactory for fluxing the Pretoria iron ores, and it is estimated that the existence of extensive dolomitic limestone so close at hand represents a saving of 15s. per ton of iron produced.

In regard to other necessary raw materials, no difficulties present themselves. Fire-clays, ganister, silica, pure lime for the steel furnaces, fluorspar, magnesite, moulding sand, and chromite, all exist in abundance.

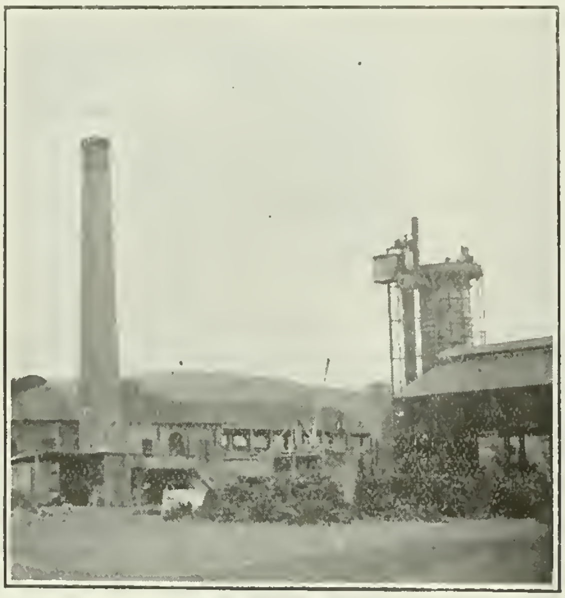
Railways and Water.

The Corporation is most fortunately circumstanced in regard to railways and in adjacency to the main trunk systems of the country, whilst ample water supplies will be be made available by means of two large storage dams - one of 1,000,000,000 gallons and the other of 80,000,000 gallons capacity which will be constructed with the assistance of the Pretoria Municipality.

Labour and Costs of Production.

The question of labour has been most carefully investigated, and it is not anticipated that there will be any difficulty in obtaining the necessary labour force for the operation of most of the plant, but it will be necessary to import some men with special knowledge of the working of furnaces and rolling mills. So far as semi-skilled labour is concerned, it is considered that the employment of Europeans will be advantageous, as being of more stable character, apart from any question of intelligence, etc.

The important factor of oversea competition has received thorough consideration. The prices quoted with regard to American pre-War costs show that pig-iron can be produced in South Africa probably even more cheaply than in America; and, apart from the cost of labour, the same favourable position will occur in connection with the cost of making steel, since the main raw materials are cheaper here.



Another View of the Works.

It is estimated that the cost of producing 200 tons of pig-iron per day in Pretoria would be £448, or £2 4s. 9½d. per ton (to which 10s. per ton must be added for capital charges, interest and depreciation). Last February, pig-iron was selling in the United Kingdom from £9 5s. to £12 5s. per ton, and in the United States for 40 to 50 dollars for internal markets (about £2 per ton more for export).

Again, on the actual figures of performance of the small furnace which the Pretoria company is at present using, if coke had cost £1 per ton the cost per ton of pig produced would have only been about the same as in England today on the large scale of production (i.e., £7 to £6 10s. in Lancashire), this being due to the very low cost here of ore and flux.

From all this it will be obvious that the South African Iron and Steel Corporation, Ltd., not only has all the essentials necessary for the establishment of iron and steel making in South Africa, but moreover that it possesses them to an extraordinarily favoured degree, and with its substantial financial backing and expert management it can be confidently predicted that the Pretoria iron and steel enterprise is going to become a most vital and important industry in the very near future.

FRASER & CHALMERS (S.A.) Ltd.

(INCORPORATED IN THE TRANSVAAL).

SOLE AGENTS FOR:

Fraser & Chalmers Engineering Works, Erith	Conveyors and Transporters.
Holman Bros., Camborne, Cornwall	Hoists, Rock Drills and Compressors.
Tangyes, Ltd., Birmingham	Oil Engines, Gas Engines, Pumps, etc.
Richard Garrett & Sons, Leiston	Agricultural Machinery.
Baldwins, Ltd., England	" Phoenix " Brand Galvanised Iron.
John Thompson, Wolverhampton	Water Tube Boilers.
G. & J. Weir, Ltd., Glasgow	Feed Pumps, etc.
T. & W. Smith, Ltd., Newcastle-on-Tyne	Wire Ropes.
H. Frood & Co., Chapel-on-Le-Frith	Brake Lining Material.
Magnolia Anti-friction Metal Co., London	Anti-friction Metals.
Henry Bessemer & Co., Sheffield	Steel Forgings, etc.
Duncan, Stewart & Co., Glasgow	Sugar Making Machinery.
Tripp Metallic Packing Co., London	Steam Packings.
Bates Expanded Steel Truss Co.	Steel Poles.
H. K. Porter Company	Locomotives.
New York Lubricating Oil Co.	Lubricating Oils and Greases.
Graton & Knight Manufacturing Co.	Leather Belting, etc.
Bucyrus Co.	Dredges, Steam Shovels, etc.
Dorr Co.	Metallurgical Plant.
Direct Steam Separators Co.	Steam Separators.
Terry Turbines	Turbines.
David Brown Sons, Huddersfield	Gears, etc.
B. F. Goodrich & Co.	Conveyor Belting and Rubber Goods.
Merril Metallurgical Co.	Metallurgical Plant.
Noordstrum Valve Co.	Valves.
Holt Manufacturing Co.	" Caterpillar " Tractors.
Plymouth Cordage Co.	Transmission Ropes.
Parkesburg Tube Co.	Charcoal Iron Tubes.

Descriptive Catalogues on Request.

FRASER & CHALMERS (S.A.) Ltd.

(INCORPORATED IN THE TRANSVAAL).

Box 619. Phones 2605 to 2610.

Farrar Buildings, Simmonds Street, JOHANNESBURG.

BRANCH OFFICES:— At Capetown, Bulawayo, Salisbury and Nairobi.

NEWCASTLE IRON AND STEEL, LIMITED.

A New Northern Natal Venture with Splendid Prospects—Moderate Capital and Ambitious Programme—Large Resources of Iron Ore Secured—Mr. Eaton's Enterprise—Progress of Work—The Future Assured.

The pleasant little town of Newcastle, in Northern Natal, is now the scene of budding activity, which promises to develop rapidly into an industry of foremost importance to the country. Situated on the main line, roughly halfway between Johannesburg and Durban, and conveniently placed in regard to all the large industrial centres of the Transvaal, Orange Free State and Natal, with extensive coal measures in its immediate vicinity, an abundance of water and a good, healthy climate, Newcastle is ideally situated for the establishment of industrial enterprises, and one must congratulate Mr. J. K. Eaton, the promoter and managing director of the Newcastle Iron and Steel, Ltd., on his choice of a site for the establishment of an iron and steel works.

But Mr. Eaton did not decide hastily.

Newcastle Iron and Steel Works: A General View.

Newcastle Iron and Steel: The Brick Works.

A Close Investigation.

It was only after two years' thorough search that he settled on Newcastle as the most suitable spot, both from the point of view of having a practically unlimited quantity of first-class ore in the immediate vicinity and an excellent supply of good coking coal. In addition, the site he has obtained is most suitable, being on the main railway line, within reasonable distance of the coast, the Transvaal and Orange Free State.

Mr. Eaton and his late partner, Mr. Cartwright, it may be recalled, were the founders and originators of the Dunswart Iron and Steel Works in 1911. The Dunswart Works have steadily grown from a small concern to the most prosperous iron and steel works in the Union, and have always been able to sell their products at considerably under imported prices. In addition to the Dunswart Works, Mr. Eaton started, and ran for about twelve months, the first bolt, nut and rivet works in the Union, which has also turned out successfully, but when he left for Europe and America to investigate on the spot the latest methods for treating iron ore, with a view to establishing the Newcastle Company, the bolt works were disposed of to Stewart, Sanders & Co., Ltd., who are running the works now, and business has increased greatly.

Mr. Eaton's enterprise in regard to the Newcastle Company promises to be at least as successful as his other ventures have been. He has certainly left no stone unturned to make this latest flotation a sound and prosperous one. Before endeavouring to undertake the establishment of this industry in South Africa Mr. Eaton travelled for over twelve months in Australia, America and England, and while there obtained most valuable information on the whole subject, including the latest and most up-to-date methods of economical treatment.

Moderate Capital and Excellent Work.

The Newcastle Iron and Steel Co., Ltd., was successfully floated in March of this year, the allocation of capital being:—

For property, plant, equipment and mineral options taken over from vendor (in shares)	£40,000
Estimated cost of additional plant and equipment to complete works	60,000
For further working capital	25,000
	£125,000

S. SYKES & CO., LTD.

Head Office: Southern Life Buildings, Main Street,
JOHANNESBURG.

Also at DURBAN, BULAWAYO, SALISBURY, EAST LONDON, ELISABETHVILLE and LOBITO BAY.

For all Engineering Supplies.

ESTABLISHED 30 YEARS.

SOLE AGENTS FOR :—

C. A. PARSONS & CO., LTD., Newcastle-on-Tyne. Steam Turbine, Turbo-Alternators, Turbo-Compressors, Condensers, Searchlights.

ROBEY & CO., LTD., Lincoln. Winding Engines, Portable Engines, Compressors, Decorticating Machinery, Uniflow Engines.

CROSSLEY BROS., LTD., Manchester. Gas and Oil Engines, Producer Plants.

SANDYCROFT, LTD., Chester. Winding Engines Stamp Batteries, Winches, and all kinds of Mining Machinery.

THE CLIMAX ROCK DRILL AND ENGINEERING WORKS, LTD., Cornwall. All classes of Rock Drills.

WORTHINGTON-SIMPSON, LTD., London. Steam and Power Pumps, Centrifugal Pumps, Condensing Plants, etc.

E. R. & F. TURNER, LTD., Ipswich. Grain Milling and Fodder Preparing Machinery.

GREENHILL & CRAIG, Belfast. "Greenhill" Mills.

INTERNATIONAL GAS ENGINE CO., U.S.A. "Ingeco" Farm Engines.

CROMPTON & CO., LTD., Chelmsford. Motors, Generators, Converters, Instruments, Complete Power Plants, AC. or DC.

A. REYROLLE & CO., LTD., Hebburn-on-Tyne. Switchgear, High and Low Tension, Armour Clad Switchgear.

D. P. BATTERY CO., LTD., Bakewell. Accumulator Batteries.

W. P. BURNAND & CO., LTD., Sheffield. Transformers.

THE LIGHTFOOT REFRIGERATION CO., LTD., London. Refrigerating Machinery.

LOCKERBIE & WILKINSON (Tipton), LTD., Staffordshire. Abattoir Fittings.

ERNEST SCOTT & CO., LTD., London. By-Products Plants.

GEO. KENT, LTD., London. Air, Steam, Gas, Oil, Cyanide, Sewage, Irrigation and Water Meters.

J. BLAKEBOROUGH & SONS, LTD., Yorkshire. Valves, Penstocks, Sluice Gates, Filters, Sewage and Fire Appliances.

TURBON PATENT FAN CO., LTD., Llanelly. Ventilating, Draught and Pressure Plant Fans.

INDENTED BAR & CONCRETE ENGINEERING CO., LTD., London. Indented Bars, Designs for all kinds of reinforced concrete structure.

BRADLEY & CRAVEN, LTD., Wakefield. Brick making Machinery.

HARRISON, SON & JOBSON, Middlesborough. Cooling Plants.

BARFORD & PERKINS, LTD., Peterborough. Water Ballast Motor Road Rollers

COLE, MARCHANT & MORLEY, LTD., Bradford. Lea's Patent Washing Trommels.

WAILES, DOVE BITUMASTIC, LTD. Bitumastic Solution, Enamels, etc.

FAWCETT, PRESTON & CO., LTD., Liverpool Sugar Machinery.

AUSTRALIAN CONCRETE BLOCK MACHINE SYNDICATE. Concrete Block Making Machines.

BIRMINGHAM RAILWAY CARRIAGE & WAGON CO., LTD. Railway Rolling Stock, Wheels and Axles.

MILLIKEN MANUFACTURING CO., LTD. Steel Structural Work, Buildings, etc.

THE STANDARD ANHYDROUS AMMONIA CO., LTD., London. Anhydrous Ammonia.

THE SERVICES OF SPECIALISTS ARE FREELY PLACED AT YOUR SERVICE. DESCRIPTIVE CATALOGUES ON REQUEST

S. Sykes & Company, Limited

(Incorporated in Rhodesia).

Letters: P.O. Box 2303. Telegrams and Cables: "PSYCHE." Telephone 2190.

It is remarkable to observe how much has been achieved in the short space of five months since registration was effected. Travellers along the main Natal line will note the cluster of well-erected red-brick buildings and the lofty structure of the blast furnace at no great distance from the Newcastle Railway Station. A branch line 500 yards long has now been laid, connecting up the main railway with the works.

The company has its own brickworks, and produces an excellent type of brick. These are employed in the construction of furnaces, smoke stacks, foundry, work shops, offices and compounds, etc., and the consequence is that the 150 acres of freehold land on which the Newcastle Iron and Steel Works are being installed are rapidly attaining the appearance of a well-erected, well-housed, well-laid-out and extensive industrial annexe to the town of Newcastle.

Newcastle Iron and Steel: Plant in Course of Erection.

Newcastle Iron and Steel: The Shops.

Newcastle Iron and Steel Works: Another View.

What the BRITANNIA "I" will do.

It's only a little 26lb. Jack-hammer doing the work of its heavier brother. In a colliery in South Wales 200 machines mining over a period of 2 years cost under 1/- per month per machine for repairs. Why not let it do the same for you?

CLIMAX "SAM."

The drill that successfully uses hollow or solid steels.

THE CLIMAX DRILLS

THE CLIMAX ROCK DRILL & ENGINEERING WORKS L^TD
4, Broad Street Place, London, E.C.2. & Carn Brea, Cornwall.

Local Address:— P.O. BOX 2303

PHONE 2190. Teleg: "PSYCHE." JOHANNESBURG.

AGENTS:—

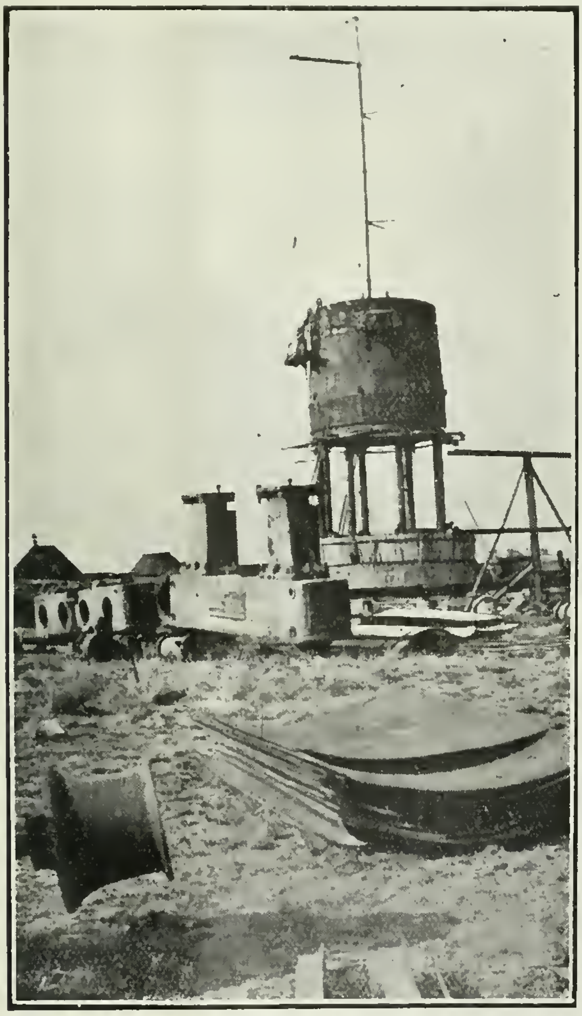
S. SYKES & COMPANY, LIMITED.

Work in connection with the blast furnace, which is a water-cooled Bosh furnace of most modern type, 70ft. high, and of 3,000 tons per month capacity, is well advanced, and it is anticipated that it will be fired in December.

Some Details of the Equipment.

For a start the furnace will be hand charged, but everything has been erected with a view to mechanical charging at a later date.

A site for another furnace of similar design has been selected, and it is proposed to instal this in the fairly near future. Four Cowper stoves will be erected, and of these two are now being installed. Two Sterling boilers are in place, and auxiliary boiler plant consisting of three Beddington boilers, fired with pulverised fuel, will be installed.



Newcastle Iron and Steel, Ltd.:
The Blast Furnace.

The company will erect its own coke ovens on the spot, and make coke from Natal coal, which can easily be obtained from collieries a few miles away. Since flotation the company has acquired an option to purchase the Fairleigh Colliery, which is situated only three miles from the works.

Good flux can also be obtained from near at hand, and there is an abundant and amply sufficient water supply in the Incanda River, right alongside the works. The foundry will be of most modern type. It will be complete with a high capacity electric crane, and capable of turning out the very heaviest castings.

The company propose erecting a 300 k.w. generator which will not only supply its own plant with electricity and light, but which will supply the town of Newcastle with light as well.

The Personal Element.

As superintendent, Mr. C. H. Riggs, who has had a long and valuable experience of iron and steel works in England, has recently arrived and taken charge of operations. Mr. Riggs has for years been manager for Lord Dudley's iron enterprises, and throughout the War was in charge of important work under the Ministry of Munitions.

Mr. Riggs is very optimistic as to the future of the Newcastle Company, and states that the machinery has been secured at remarkably low prices. "Such an equipment," he remarked, "could not be erected in England to-day for three times the cost."

Mr. Eaton also secured the services of Mr. S. C. Poole, who has had over twenty years' practical experience of working with and erecting blast furnaces. Mr. Poole is now on the property at Newcastle, and doing excellent work. The services of Mr. Simpson, the mechanical engineer of the Lithgow Iron Works, New South Wales, have also been secured, and he worked with Mr. Poole for many years on similar work. It is certain that the management will be in first-rate hands, with British and Colonial experience, and, in addition, the company will have the benefit of Mr. Eaton's personal supervision.

Skilled furnace men and iron and steel workers have been obtained from England and Australia, and nothing will be left undone to ensure the absolute efficiency of the staff.

Extensive Ore Deposits.

The company will derive its ores from four extensive and high-grade deposits in the Dundee and Utrecht districts. Ore has already been accumulated for despatch at these properties, and large quantities will be available as soon as the blast furnace is fired. Very complete analysis of these ores were published in the S.A. Mining and Engineering Journal of February 28, 1920. These assays were made by Messrs. Pattison and Stead, of Middlesborough, England, and they disclose a very high grade of ore. In the case of ore sample from "Dick's Farm," analysis gave 86·071 of peroxide of iron, and the sample from Mountain View contained 80·643 per cent. The analysis showed, too, that the ores contained no refactory or deleterious elements.

Quite apart from these properties, the Newcastle town lands themselves contain large quantities of iron ore of a grade higher than Mr. Riggs has recently been working with in England.

A Bright Outlook.

A fact that should not be lost sight of is that Newcastle is the centre of an important agricultural district, and the by-products of the Newcastle Iron and Steel Co., Ltd., will be of great value to farmers.

To sum up: this enterprise is well managed, well endowed with all the materials necessary for successful iron and steel making, and well situated in regard to markets. With its comparatively small capital and ample working capital, the company should pay substantial dividends, and do so in the near future.

The World's Production of Pig Iron.

Statistics that are the Gauge of Civilisation.

A.D.	TONS.	A.D.	TONS.	A.D.	TONS.
1500	60,000	1850	4,422,000	1905	53,201,008
1700	104,000	1860	7,180,000	1907	59,721,399
1796	278,000	1870	11,616,000	1908	47,601,731
1820	1,010,000	1890	27,194,294	1910	65,544,425
820	1,010,000	1890	27,194,291	1910	65,000,000
1830	1,585,000	1900	39,557,076	1912	72,000,000
1840	2,680,000				

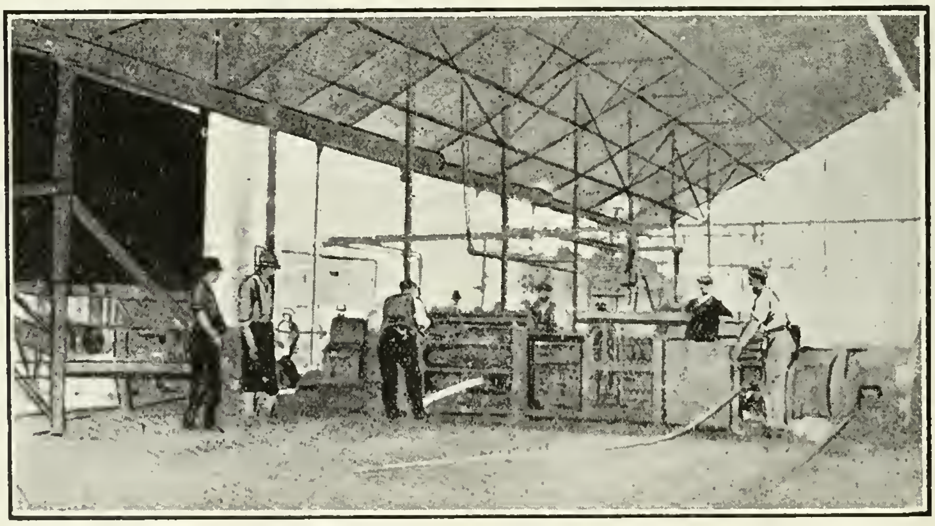
DUNSWART IRON AND STEEL WORKS.

A Busy Enterprise Situated in the Heart of the Far Rast Rand—Dunswart's Splendid War Service—Extension of Works Projected—The Company's Product in Demand from Capetown to Mombasa.

One of the most successful industrial enterprises in South Africa is the Dunswart Iron and Steel Works, situated about two miles from the township of Benoni, along the Main Reef Road.

Visitors to the Benoni racecourse are familiar with the smoking chimneys and constant activity of these works which have earned a great reputation throughout South, Central and East Africa for turning out an excellent product.

Dunswart Iron and Steel: A General View of the Works



Dunswart Iron and Steel: A View of the 8in. Mill, showing bars being actually rolled.

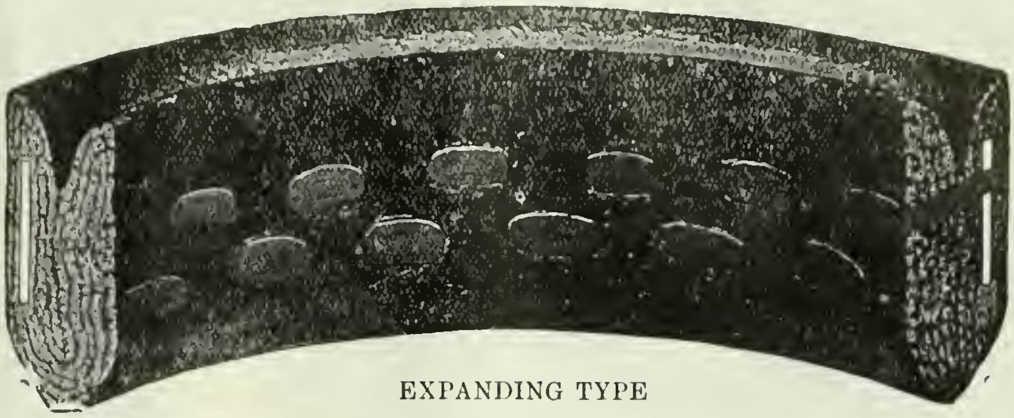
Of National Importance.

Dunswart and Messrs. Lewis & Marks' Vereeniging enterprise rendered magnificent service during the War period. But for these enterprises and their ability to supply the mines and railways at a time when outside sources of supply were not available, the mining industry and the S.A.R. would, to put it bluntly, have been in "queer street," and in considering the Dunswart works it should always be borne in mind that this enterprise has been and still is one of national importance.

How Dunswart has been Established.

The establishment and growth of this Far East Rand iron and steel industry has been achieved in the face of numerous difficulties, through the foresight and perseverance of Messrs. Cartwright and Eaton who, in 1911, formed a private company of £10,000 capital, taking in with them Messrs. Grubin, H. A. Neame and Bromley Kemp. They registered as Cartwright & Eaton, Ltd., and erected a 12 in. Merchant guide mill, two furnaces for mill, and three pile or ball furnaces and steam hammer. Mr. J. K. Eaton, being joint managing director, erected and managed the plant for the first two years. He secured iron workers, under contract, from Scotland. Late in 1913 the company engaged Mr. Deakin from England to manage the works. Later, the capital was increased to £25,000 and the company registered as the Dunswart Iron and Steel Works.

— This —



EXPANDING TYPE

—it's the packing
you've waited for—

It's the packing that means your high pressure troubles are over—the one that means an appreciable cut in your packing bills—a packing that LASTS.

"Lion" Metallic Packing

"Patented"

See those metal studs. They present an entire metallic wearing surface. Inserted in packing they form contact with the rod at all points. They reduce friction—lengthen the life of the packing tremendously—eliminate scoring of the rod.

Even without those studs "Lion" is as good as any other packing. Made of the finest materials we can procure, it is acted upon AUTOMATICALLY — gives *always* a tight surface. But *with* those studs, "Lion" is *better than any other made.*

We'll prove that to you. We'll prove that you need "Lion" in your plant—in the difficult places, the ones that have made you lose faith in ordinary packings. Give us the chance. Ask for details NOW.

SOLE AGENTS—

C. Wharton Hood & Co. (S.A.), Ltd.

P.O. Box 6096. 'Phone 973.

Offices: SOUTHERN LIFE BUILDINGS,
HARRISON STREET, JOHANNESBURG.

ATLANTA, BIRMINGHAM AND ATLANTIC RAILROAD COMPANY
H. M. ATKINSON RECEIVER
OFFICE OF THE SUPT MOTIVE POWER
R. L. DOOLITTLE
NATIONAL CLOAK & SUIT CO.
SEVENTH AVENUE
WE OWN AND OCCUPY THIS ENTIRE BUILDING
OVER FIFTEEN ACRES OF FLOOR SPACE
THE EQUITABLE LIFE ASSURANCE SOCIETY OF THE UNITED STATES
CLUETT, PEABODY & COMPANY
ROCHESTER, N.Y.
SALESROOMS BALTIMORE BOSTON CHICAGO MINNEAPOLIS NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURG SAN FRANCISCO ST. LOUIS
CAST STEEL
TRADE JENKINS MARK
Jenkins Bros.

Users Say—

*** Jenkins Bros. valves that have been opened and closed at least 12,000 times and still in very good condition.
Cluett, Peabody Co., Troy, N. Y.

*** There are in use in our plant approximately 100 Jenkins Bros. Valves, that were installed almost half a century ago, and other than putting in a new disc occasionally, they have put us to no repair expense whatever.
C. H. Graves & Sons, Boston, Mass.

We have found it advisable to use genuine Jenkins valves throughout our new plant. Some of your valves have been in our old plant for as long as eight years and many of these are being employed in the new plant, there to begin a new term of efficient service.
Crozet Ice & Cold Storage Corp., Crozet, Va.

*** Jenkins Bros. valves have been in use for 25 to 30 years.
Ketcham & McDougall, Brooklyn, N. Y.

*** these valves have given us entire satisfaction; having no trouble whatever with them.
Atlanta, Birmingham & Atlantic R. R., Fitzgerald, Ga.

*** given great satisfaction and some of them have the same discs in them that came with the valves when new in 1892, being in use every working day since that time and still in use and tight.
D. F. Mahoney, New York

*** The cost for repairs on 25 valves for two years will not exceed 75c.
Chicago, Lake Shore & Southern R. R., Michigan City, Ind.

JENKINS BROS.

TRADE
JENKINS
MARK

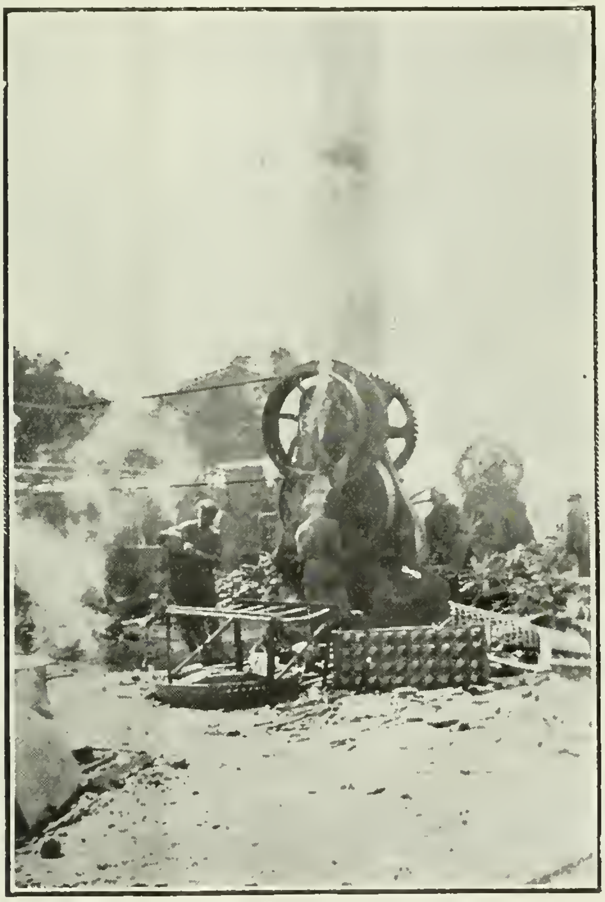
Sole Agents:

C. WHARTON HOOD & CO. (S.A.) Ltd.

Dunswart Iron and Steel: Another View of the Works.

A Busy Hive of Industry.

The Dunswart Iron and Steel Works to-day cover ten morgen of ground with a short branch line connected with the main railway system at Dunswart. The works are thus admirably situated with regard to the great Far East Rand hive of industry and indeed with regard to the whole of industrial South Africa.



Dunswart Iron and Steel: Scrap Shears at Work.

The company's products not only find ready sales throughout the Union and Rhodesia, but Dunswart customers are to be found as far afield as British East Africa and the Belgian Congo.

The company is at present unable to cope with the demand for its products, but new plant is on order and the present output of 650 tons per month should be substantially increased in the not far distant future. With this object in view the technical advisers of the company are now in England investigating the latest methods obtaining in iron and steel practice with a view to extension of the Dunswart Works. These gentlemen are expected to return at an early date and in so far as one portion of the projected extensions is concerned it is important to learn that new workshops, a new puddling furnace and two new bushelling furnaces are expected to be in commission in about six months.

First Class Iron Workers.

Work is carried on at Dunswart in two shifts by about 50 white employees, 20 of whom have been secured from Overseas and 220 natives. The iron workers are all on contract and are first-class men, who are helping to train the young idea in the intricacies and technique of iron and steel making.

"Kopjes of Iron."

Scrap iron of all kinds, bolts, nuts, old locks, old iron bars and castings is accumulated at Dunswart in veritable kopjes of old iron—one of these small mountains alone contains three to four thousand tons of scrap.

Variety of Products.

This refuse is worked up into new products of high-grade quality, into angle iron, tube mill bars, all sizes of "flats" up to 4 ins. and of "rounds" up to 2½ ins., into "common" iron or into "triple faggoted" for coupling links on the railways and buffer shanks, etc.

The original 12 in. mill has been supplemented by a new 8 in. mill, which has been at work for 18 months and the company now possesses five Ball furnaces. The works are well managed and well equipped and the quality of iron and steel produced has won for Dunswart a reputation second to none in the budding iron and steel enterprises of the sub-continent.

The discovery is reported of important coal deposits near Bukama, in the Moëro district, Belgian Congo.

The sinking of coal shafts in the Campine (Belgian Limburg) is being pursued with great activity. The coal mines of Winterslag are already working, their monthly output being estimated at 30,000 tons.

A Melbourne message states that developments are expected shortly in connection with the rich iron ore deposit in the vicinity of Heemskirk, Tasmania. Leases aggregating 400 acres are held, and capital is being found to open up the deposits.

Reid Brothers

JOHANNESBURG

COLLIERY AND MINING

Telephone 6070/1.
P.O. Box 802.
Telegraphic Address :
"REEF," Joh'burg.

JOHANNESBURG OFFICE : Maxwell Buildings, Harrison Street.
STORES : Commissioner Street.

AGENTS FOR :—

"HARDIAX" COAL-CUTTERS

Early delivery can now be given. The MOST EFFICIENT and ECONOMICAL Coal-Cutter on the Market.

"HARDY-SIMPLEX" HAMMER DRILLS

Outdistance all other Machines for ECONOMY, RELIABILITY, SPEED, and HANDLING. Immediate delivery can be given. HARDY CONQUEROR Hand Coal-Boring Machines.

ANDERSON, BOYES & CO.

Electric Coal Cutters. Chain and Disc Type.

RENTON & FISHER, Bathgate, Scotland.

Mining Trucks, Colliery Tubs, Sugar Cane Trucks, Steel Castings, Wheels and Axles, Rope Rollers and Bearings.

RONALD TRIST & CO., London.

Thermo-Feed Boiler Regulators, S.E.A. Packing Rings, A.A. Packing.

We carry Large Stocks

Twisted Coal Auger Steel, Hardy Mining Picks and Handles, Shovels, Packings of all kinds, Blacksmiths' Tools, Forges, Bellows, Tue Irons, Fans, Bolts, Nuts, Washers, Dog Spikes, Tirefonds, Rail Benders, Nails, Rivets.

Shaping Machines, Drilling Machines, Emery Grinding Machines,

(South Africa) Ltd.

and DURBAN.

MATERIAL SPECIALISTS.

DURBAN OFFICE: Southern Life Buildings, Smith Street.
STORES: Prince Alfred Street.

Telephone No. 1670.
P.O. Box 729.
Telegraphic Address:
"SUPPLIES" Durban.

R. & J. DEMPSTER, Manchester.

By-Product Plants, Coke Ovens, Condensers, Exhausters, Tar Extractors, and Ammonia Washers.

CARRON COY., Falkirk, Scotland.

ELECTRIC HAULAGE GEARS.

STURTEVANT ENGINEERING CO., London.

VENTILATING and BLOWING FANS, CRUSHERS, Etc.

CHAPMAN DOUBLE BALL-BEARING COY., Canada.

DOUBLE BALL-BEARINGS.

DURVITE (1909) LTD.

CASE HARDENING COMPOUNDS.

of the following:—

Brattice Cloth, Boiler Fittings, Injectors, Ejectors, Valves, Lubricators, Shafting, Plummer Blocks, Collars, Stocks and Dies, Nicholson's Files, Kibbles, "Waverley" Iron and Steel, Spanners, Vices and Wrenches, etc., etc.

Hack Sawing Machines, Screwing Machines, etc., etc.

SOUTH AFRICA'S EXPANDING COAL OUTPUT.

How the Collieries Have Progressed Since the Beginning of the Year—A Big and Unsatisfied Demand at the Coast—Important Overseas Contracts—The Mines and the Railways—A Review of the Situation.

It is impossible to consider the iron resources of South Africa and the prospects of establishing an iron and steel industry of first-rate importance without a reference to the coal measures of the country. There would be no outlook at all for our immense iron ore deposits if coal had to be imported. But in this respect South Africa is singularly fortunate, for it possesses almost illimitable coal fields, traversed by railways and situated at no great distance from the iron ore deposits.

The Text Book of South African Coal Mining.

In the special coal number of the South African Mining and Engineering Journal, published at the beginning of this year, the statistics, geology, technology and trade of our collieries and coal fields were examined in great detail and it is a source of vast satisfaction to us that the articles contained in the special number have been quoted at length, not only by the technical press of Europe and America, but by chairmen presiding at the annual meetings of important colliery enterprises, and also that there has been a world-wide demand for the special issue.

THE OLD WAY AND THE NEW:

Coaling at Durban by Hand.

Since that exhaustive review of our coal mining activities and prospects was published, the output of the collieries has increased both in volume and value. The price has been advanced and there is a constant and unsatisfied demand for South African coal by shipping at Durban and Delagoa Bay.

The Railways have coped with the situation to the best of their ability, but the break-down of thirty-eight of the new American locomotives has greatly hampered despatch of coast borne traffic and the demand for coal at the ports is greatly in excess of the supply.

Output Statistics.

Nevertheless the output has risen substantially, particularly from the Natal pits.

Increased activities at the collieries first came into evidence during March, when the coal output of the Union of South Africa for the month was the most valuable ever sold in any single month in the history of the country up to that date. The total amount of coal sold by the four Provinces was little short of a million tons (990,960) and the value at pit's mouth was £375,006. This was a very material increase on the February figures of 779,117 tons and £281,285 and led one to believe that the incidence of high wages and shortage of output in Europe and America was at last having a very real effect on the Union's coal trade. There is already a very active demand for South African coal in several Continental countries and in South America in addition to the market which has existed for years in the East and in Egypt. The output of the Natal pits for March was a record and there was an increase of almost 50 per cent. both in tonnage and value. It is, too, important to note that Natal's coal output sold for a higher figure than the

Transvaal for the first time, we believe, in the history of coal mining in this country. The Garden Colony, in fact, produced one half of the entire tonnage of the Union.

Thereafter the value of coal produced at pit's mouth in Natal continued to increase, and although the May output of the Natal Collieries was, in point of tonnage 16,000 tons below the record output of 306,506 tons produced in respect of March of this year, the value of the Colony's output in May at £181,400 is the highest ever recorded. The price, which has exhibited a progressive increase for some months past, was 12s. 5·85d. per ton, which is 6d. a ton higher than it has ever previously been sold at. These figures clearly show that the demand for Natal coal is increasing and that given adequate transport facilities the export and bunker trades which have been steadily increasing for months past could be made to assume tremendous dimensions. Within a few months the new deviations should greatly assist the transit of coal to the coast and there is considered to be every reason for a further substantial increase in the Natal output.

The Transvaal output for May was 590,501 tons, valued at £168,825 or 5s 8·62d. per ton at pit's mouth, and the production of the whole Union was 957,221 tons, or £372,372. The following tables exhibit the salient features of the month's output.

PROVINCE.	No. of Collieries Producing.	Total Coal Sold. Tons.	Total Value Realised at Pit's Mouth £	Value per Ton at Pit's Mouth. s.	d.
Springs-Brakpan area Transvaal)	5	40,055	10,784	5	4·62
Middelburg area Transvaal	19	461,514	134,663	5	10·03
Other areas (Transvaal)	12	88,935	23,378	5	3·09
Transvaal	36	590,504	168,825	5	8·62
Cape	5	419	346	16	6·19
Orange Free State ...	4	75,770	21,801	5	9·05
Natal	27	290,528	181,400	12	5·85
Union of South Africa	72	957,221	372,372	—	

Particulars of by-products outputs are:

	By Products Produced			
	Coal Converted into By-Products. Tons.	Coke Tons.	Tar. Gallons.	Sulphate of Ammonia. Tons.
Transvaal	620		3,595	
Natal ..	7,622	1,851		235
Union of South Africa..	8,242	1,851	3,595	235

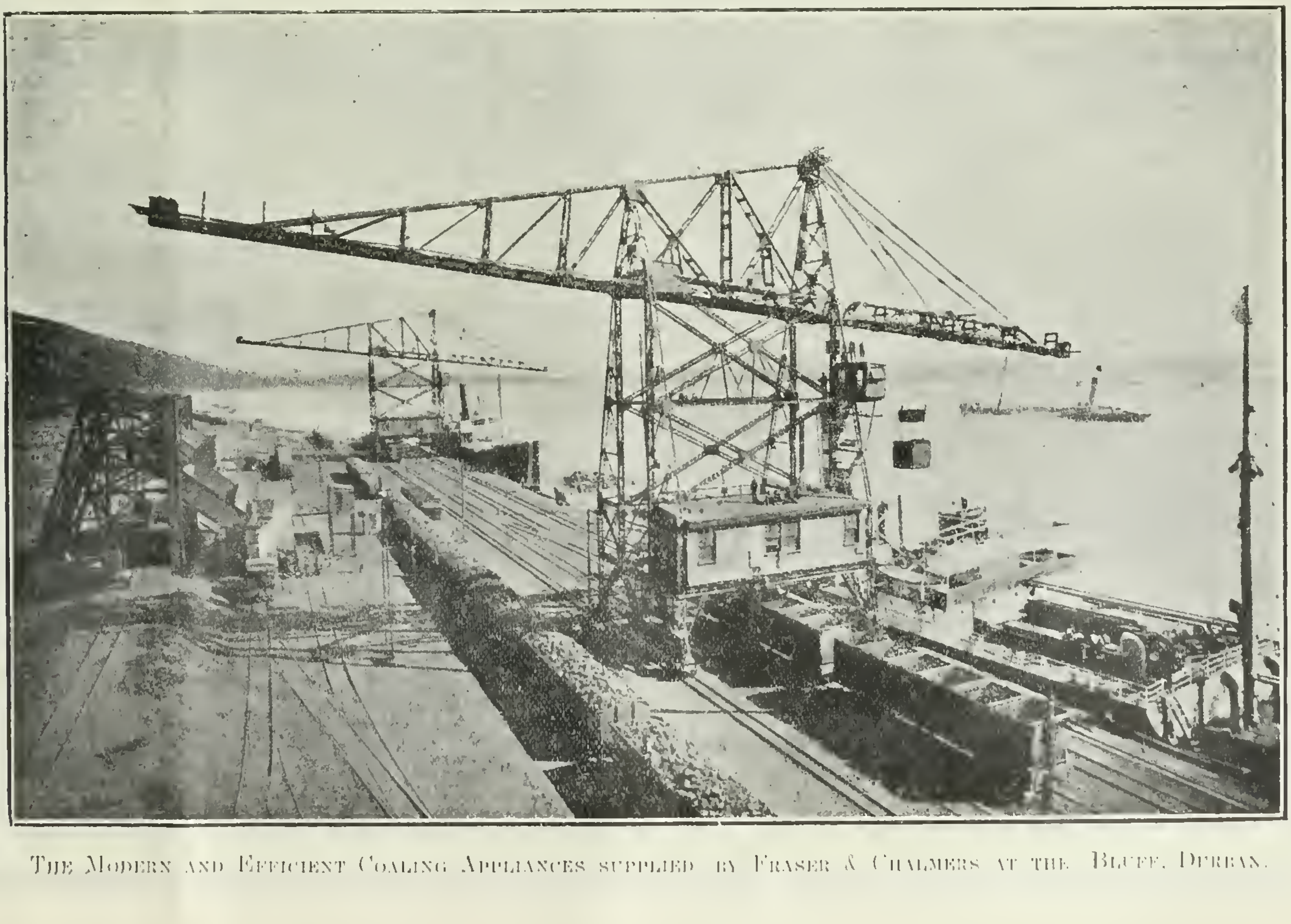
IMPORTANT CONTRACTS.

No small proportion of the increased sales of the Natal collieries is due to the activities of the Mauritius group of interests which some time ago acquired extensive areas in the Vryheid district, prominent amongst which are the Enyati, Buffalo and Bernica mines. These companies recently concluded large contracts for the delivery of their coal to the Paris-Lyons-Mediterranean Railways, and the recent increase in the export of Natal coal is in no small measure due to the sending of coal to the great French port of Marseilles. The Argentine is also in the market for South African coal, and Sweden has recently been a substantial purchaser of the Transvaal's product.

Position of the Industry.

The position in regard to the South African coal industry may be summed up as under:—

The total output of the Natal Collieries for 1919 at 2,495,015 tons shows an increase for the year of 165,545 long tons, but no less than 262,663 tons below the 1916 return. The output capacity of the developed collieries to-day may be put on a conservative estimate at 5,000,000 tons per annum, but owing to the restriction placed on the outputs, largely owing to the failure of the railways to meet the demand for trucks, the operation of coal mining is carried on under great difficulty, and to-day we have collieries developed ready to produce coal, which is in enormous



The Modern and Efficient Coaling Appliances supplied by Fraser & Chalmers at the Bluff, Durban.

HENRY S. POTTER

Limited.

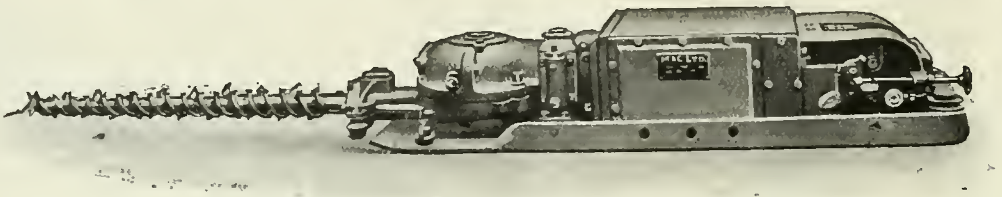
26, CULLINAN BUILDINGS, MAIN STREET,

JOHANNESBURG.

'Phone 4337.
P.O. Box 5510.

Cables and
Telegrams:
"SHEFFOLLO."

ARE YOU INTERESTED IN COAL HEADING MACHINES?



"PICK-QUICK" HEADING MACHINE.

TWO MONTHS' WORK IN DRIVING THROUGH A SHAFT PILLAR.

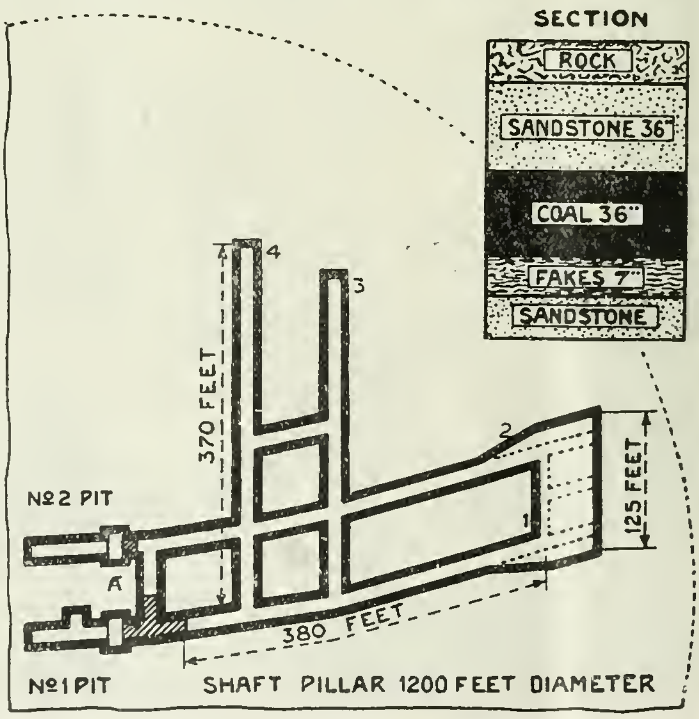
Particulars of Machine	Size *Medium*	Type *Electric*	Winding *3 Phase*	Depth of Cut *6 Feet*	Holing Position *Bottom of Seam*	Width of Place *12 Feet*
Particulars of Seam	Depth from Surface *378 Yards*	Thickness *3 Feet*	Inclination *Nearly Flat*	Roof *Sandstone*	Floor *Fakes*	Nature of Holing *Medium Coal*

NOTE

The shaded parts were cut by hand, and the machine was started at "A" on 25th December, 1918, and opened connection with No. 2, Pit on 31st December. The Pit was idle during holidays till 7th January, 1919, when the machine began to drive the levels 1 and 2, and later added the headings 3 and 4, and also cut the cross-cuts. Each place was undercut 6 ft. deep twice in eight hours; two eight-hour shifts were required for ripping; each of four places was thus advanced two fathoms per working day. The method was, for example, to start at 1, to cut that place and flit to 2, to cut 2 and flit to 3, to cut 3 and flit to 4; the machine-men then took their meal while three men stripped the undercut coal in 4, then 4 was again undercut, and the other headings, from which the coal was meanwhile stripped, were cut in succession in reverse order, the machine finishing the shift at 1. When the workings had reached the stage shown on the plan, the machine in twice undercutting the two headings and two levels, traversed from working place to working place, a total distance of 2780 feet; and this in one eight-hour shift.

On 7th March a second machine was delivered; the first machine continued in the headings 3 and 4, and the new machine was applied to undercutting 6 ft. deep a wide heading (125 ft. wide) joining 1 and 2, to carry forward three roads at the rate of a fathom per day. Beyond the shaft pillar, longwall faces will be opened out, and will be undercut by the same machines.

The daily output from the four places was 50 to 55 tons, and from the wide heading the output is 70 to 75 tons.



demand throughout the world, with poor railway facilities. At all seasons for many years the coal owners have constantly urged the Government to provide more trucks, more engines, and more coal-handling facilities, but so far without any great success. The question of coal storage at the Bluff has at last been taken up, and plans have been agreed upon to provide storage bins of increased capacity. The opening of the new line between South Coast Junction and Umlaas Road towards the end of the year will probably increase the carrying capacity of the line 10 per cent., but on the other hand the present running plant requires heavy repairs.

In the Transvaal and Free State there has been no such recent expansion of sales values as has been evidenced in Natal, but the position is sound, and there is a constant and big demand for the Witbank-Middelburg produce at Delagoa. And throughout South Africa the tendency is for coal prices at pit's mouth to appreciate largely in consequence of the recent demands of coal miners for more pay and shorter hours.

A TRIBUTE TO IRON.

By Professor H. M. Howe, Professor of Metallurgy at Columbia University.

No more eloquent testimony to the service iron has rendered to humanity was ever written than that penned by Professor H. M. Howe, Professor of Metallurgy at the Columbia University, and author of *The Metallurgy of Steel*:—

" Iron, the most abundant and the cheapest of the heavy metals, the strongest and the most magnetic of known substances, is perhaps the most indispensable of all save the air we breathe and the water we drink. For one kind of meat we could substitute another; wool could be replaced by cotton, silk or fur; were our common silicate glass gone we could probably perfect and cheapen some other of the transparent solids; but even if the earth could be made to yield any substitute for the forty or fifty million tons of iron which we use each year for rails, wire, machinery and structural purposes of many kinds, we could not replace either the steel of our cutting tools, or the iron of our magnets, the basis of all commercial electricity. This usefulness iron owes, in part, indeed, to its abundance, through which it has led us in the last few thousand years to adapt our ways to its ways; but still, in chief part, first to the single qualities in which it excels, such as its strength, its magnetism, and the property which it alone has of being made at will extremely hard by sudden cooling and soft and extremely pliable by slow cooling; second, to the special combination of useful qualities in which it excels such as its strength, with its ready welding and shaping both hot and cold; and third, to the great variety of its properties. It is a very Proteus—extremely hard in our files and razors and extremely soft in our horshoe nails, which in some countries the smith rejects unless he can bend them on his forehead; with iron we can cut and shape iron. It is extremely magnetic; as brittle as glass, and almost as pliable and ductile as copper; extremely springy, and springless and dead; wonderfully strong, and very weak; conducting heat and electricity easily, and again offering resistance to their passage; here welding readily, there incapable of welding; here very infusible, there melting with relative ease. The coincidence that so indispensable a thing should be so abundant, that an iron-needing man should be set upon an iron-cored globe, certainly suggests design. The indispensableness of such abundant things as air, water and light is readily explained by saying that their very abundance has evolved a creature dependent upon them. But the indispensable qualities of iron did not shape man's evolution, because its great usefulness did not arise until historic times, or even, as in case of magnetism, until modern times."

Establishing a Local Industry.

Mr. Maurice Brown, who is so largely interested and actively engaged in the iron and steel trade, interviewed by this journal, says it has been one of his greatest desires to assist in the establishment of an iron and steel industry in South Africa. The public, generally, do not fully appreciate how much such an industry would mean to South Africa.

Mr. Brown is aware of at least two foundries which are waiting for a regular supply of pig-iron at a reasonable price to manufacture specialities, and understands there are other works in the Union which have similar intentions.

Apart from these facts, there are so many allied trades that must arise in due course from the establishment of blast furnaces. Although we are only a small community, with a correspondingly limited market, it is surprising the quantities of iron and steel that are imported in various forms, in addition to the local output of the Dunswart Iron and Vereeniging Steel Works. It may be many years before high-class steel is successfully manufactured in the Union, but there is no doubt that before we are very much older we will see the quantities imported of ordinary iron and steel considerably reduced.

The Newcastle Iron and Steel, Ltd., of which Mr. Brown is a director, will produce more pig-iron than the present South African market can absorb, therefore they will be exporting their surplus.

Before long the company will themselves consume large quantities in the manufacture of steel castings, cast-iron piping, etc. The demand in other quarters for pig-iron will also increase, so that it is hoped and expected that in due course additional blast furnaces will be required at Newcastle. Mr. Brown is very optimistic as to the prospects for the industry.

Sparks as an Indication of Different Kinds of Steel.

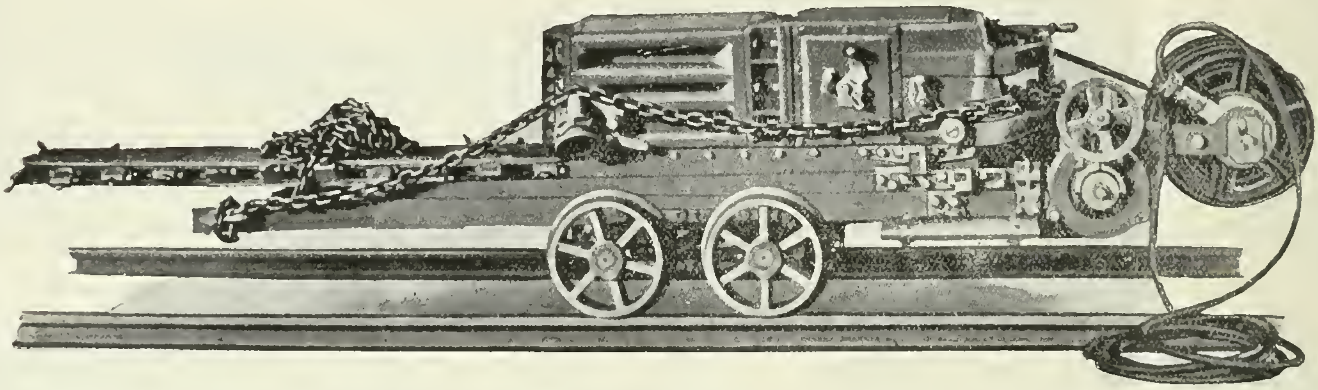
From the paper read by Mr. Max Bermann before the Copenhagen Congress of the International Association for Testing Materials. The sparks that come off when grinding iron and steel by means of emery wheels, present a different appearance according to the kind of material ground, the path of the spark from its origin to its extinction forms a line of light which may be called a spark-ray. This spark-ray consists of a line of light the end of which branches out in every direction, having an explosive-like appearance; it is this end of the rays that in particular varies for different classes of steel, and which are called the spark pictures. Some of these spark-pictures contain only a very few lines, while others contain a great many, some of them presenting secondary explosions and projections. The rays extending from the drop-formation in the spark-picture have a strikingly higher speed than the particles in the spark-rays, and it appears as if they were suddenly thrown out in various directions by an internal force.

THOMAS BARLOW & SONS,
(S. A.) LIMITED.

Telegraphic Address: "SHIPMENTS."
Telephones 2460 and 2322.
Hulston's Buildings,
Smith Street,
DURBAN.

Telegraphic Address: "SHIPMENTS."
Telephone 6503.
28-29 Oceana Buildings,
Simmonds Street,
JOHANNESBURG.

SOLE AGENTS IN SOUTH AFRICA FOR
THE SULLIVAN MACHINERY COY.



Sullivan Alternating Current Ironclad "C.E.-7," on Self-propelling Truck.

We have supplied Sullivan Electric Chain Coal Cutters to :--

- Witbank Collieries.
- Tweefontein United.
- Oogies.
- Middelburg Coal Co.
- Transvaal and Delagoa Bay Collieries.
- Elandslaagte.
- Newcastle Colliery.
- Natal Steam.
- Durban Navigation Coy.
- Tendega Colliery.
- Buffalo Collieries.
- Natal Navigation Collieries.

THE VALUE OF COAL TAR DISINFECTANTS IN MINE DISINFECTION.

Not the least important of the many products having a coal tar derivative is the modern high co-efficient disinfectant which is manufactured from the higher boiling tar acids.

But whilst great strides have been made in scientific research in connection with the production of disinfectant fluids having a high germicidal value, it is feared that knowledge of those whose duty is to systematically use artificial disinfectants has not increased in the science of disinfection in ratio to the advancement in the science of the production of the preparations.

Whilst it is not expected that the average householder should have had a highly scientific training in the ethics of hygiene, and may be pardoned if unable to use fine discrimination in the purchase and use of disinfectants, it is a regrettable fact that it has been found that large consumers, such as mines and municipalities, sometimes display a deplorable lack of discrimination in the choice of disinfectants or in their methods of carrying out disinfection. Neither from the point of view of hygiene or of economy is sufficient thought or care given regarding the value of the preparations used.

The most economical as well as the most effective germicide is the emulsifying preparation having a co-efficient of 18 to 20—that is, having a germicidal strength 18 to 20 times that of pure carbolic acid when tested on typhoid germs under the Rideal-Walker method. There are a very large number of emulsifying coal-tar preparations on the market, some of which claim to have a high co-efficient, but which on being tested bacteriologically totally fail to attain the co-efficient claimed, and are virtually merely deodorants which do more harm than good, as instead of removing the cause of the smells which denote the presence of noxious bacteria, they merely screen Nature's warning without removing the cause—*i.e.*, the disease-spreading germs. By the use of an effective disinfectant the germs are destroyed and the noxious smell automatically ceases.

But it is not only by the co-efficient that we must judge a disinfectant. High co-efficient is useless unless combined with miscibility and homogeniety. In a high-grade preparation, such as hycol, the further quality of non-toxicity and freedom from caustic is an additional virtue.

Should a disinfectant return a high co-efficient under the bacteriological test, but show lack of miscibility when put to practical use, it is valueless as a germicide. Unless the greatest care be exercised in the choice of the emulsificants used, the fluid will break in the emulsion or separate when brought into contact with organic matter, as it is bound to be when in practical use. Any such defect reduces the germicidal strength of the fluid in proportion to its lack of stability in the emulsion.

Owing to the absence of the higher boiling tar acids in inferior fluids it is very much easier to emulsify such preparations, and it is therefore essential that the consumer should not judge a preparation merely by its emulsifying powers. Germicidal strength may be absent. The prospective purchaser should, consequently, first ascertain definitely the co-efficient, or germicidal strength, of the fluid offered to him. It is no longer necessary to accept the statement of the vendor in this connection. Bacteriological tests may be obtained from the South African Institute for Medical Research. On obtaining satisfactory and definite information on this point, the next procedure is to ascertain the miscibility of the fluid under conditions as near as possible those under which the fluid is to be used. A simple and effective physical test for comparative purposes is to obtain several fluids having more or less similar ascertained co-efficients, and to dilute these fluids in the same proportions with ordinary tap water, or water similar to that which it is intended to use when diluting for disinfection. Use ordinary glass tumblers for making the dilutions. Leave the dilutions standing for about six hours, and then examine. It will be found that the fluids having inferior powers of emulsion will have patches of oil floating on the dilutions or deposits. Any such preparation should be rejected unless its ascertained co-efficient is sufficiently superior to a fluid showing better miscibility to justify the choice of the less miscible fluid.

A disinfectant known as hycol—the fluid which has been officially adopted by the Union Government and by some of the larger groups of mines—has been regularly tested by the Government basteriologist for some years past and consistently maintains the qualities of co-efficiency, homogeniety, miscibility and non-toxicity claimed for it. The manufacturers of this preparation are among the very few (if any) who frankly state the analysis of the fluid, which shows 33 per cent, of high-boiling tar acids and less than 8 per cent. of water; the balance is made up of anhydrous emulsificant and hydrocarbons. The standard of dilution for this preparation for general disinfection is 1 in 400. An advantage this fluid possesses over many others having a similar derivative is that if first diluted with from four to eight times its volume of ordinary tap water, it will readily emulsify with brak or acid mine water.

The best methods to be used in carrying out effective disinfection will be dealt with in a later article, but before concluding, attention should be drawn to the fallacy of obtaining the best results from the use of chlorine preparations. Chlorine (or its derivatives) has only a small disinfectant value. Its action is limited. It is more of an antiseptic than a germicide. That is, it merely arrests the development of micro-organisms. It does not destroy them. As soon as contact between the germs and the antiseptic preparation ceases, the germs continue their growth and development. Na. Cl., more generally known as common salt, is an antiseptic, but no one with any knowledge of the respective values of the numerous preparations on the market would deliberately use salt and water to effectively disinfect a mine compound. The analysis of a preparation generally considered (by the uninitiated) to be a very effective disinfectant shows it to be composed of 12·7 per cent. of Na. Cl. (common salt), 2·3 Sodium Hypochlorite and 85 per cent. water. These figures should make purchasers think.

THE SOUTH AFRICAN MARKET FOR IRON AND STEEL GOODS.

What is the nature and volume of the market which exists locally for the commoner products of the blast furnace and the steel works? It is estimated that the Union of South Africa's annual requirements of iron and steel goods include 77,000 tons of rails for the railways and mines; 5,000 tons of angles and channels; 21,000 tons of bar, bolt and rod iron; 8,000 tons of girders, beams and columns; 10,000 tons of plate and sheet iron; 2,500 tons of bolts, nuts and washers; 25,000 tons of fencing standards; 6,000 tons of drill steel; 7,500 tons of shoes and dies; 2,500 tons of steel castings; and 10,000 tons of pig-iron, constituting a total of 175,000 tons. All this material is capable of being produced in steel works of relatively small size.

The requirements of the Union Railway Administration alone are very considerable, and it is understood that the Government has signified its willingness, subject to confirmation by Parliament, to encourage the working of the ore deposits in the Pretoria district, by making a contract for the purchase of a substantial portion of the railway's main requirements in the matter of rails, etc.

It is reported from Pittsburgh that plans have been completed for the amalgamation of the La Belle Iron Works with the Wheeling Steel and Iron and the Whitaker and Glessner companies within a fortnight. The total capital of the amalgamated concern will be $100,000,000.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

The Currency Bill well on its way, with an important Amendment—Wool Financial Troubles not over—Standard Bank review of business—Iron and Steel—Better tone on Commercial Exchange—Importing Men for Building Trade—Electrical Goods.

July has been a bad month in actual business, but now there is a better feeling, as the banks are expected to be a little more liberal as they can see the Government will pass the new Currency Bill. The Minister in charge agreed to an amendment that at the end of three years, viz., on June 20th, 1923, the whole thing will be reviewed as to the exact date when the gold standard should again come into existence. As that bone of great contention is settled, the others should go rather smoothly, especially now the exchange between here and London is par up to £500, and over ¼ per cent. for the selling rate. Buying rates 5-8tbs for telegrams and 1¼ for sight drafts. By the way, the banks are still setting their faces against speculation of all kinds, as the wool troubles, as well as the poor price of hides and skins, are financial problems yet to be negotiated. A travelling bank official attaches considerable importance to the subject, as he has inspected the books. The one redeeming feature is that speculators made a lot of money on the rise, therefore they are in a position to meet losses; but, naturally, a few got caught, and that is where the financial trouble is coming from. A reason for optimism is that the price of gold has risen to 108s. 3d. per ounce, which points to the ability of the lower grade mines to keep going.

The following are a few extracts from the Standard Bank's cable review of business. Although the turn of the half year produced a very weak Bank of England return, there is at present no prospect of the Bank rate advancing, as other measures are being taken to obviate such a step, and altogether the money market should remain steady until the autumn. Trade is still keeping active, but there are more uncertainties. The heavy taxation which at present is being felt more severely by traders as international competition revives. New capital issues continue, but on a smaller sale than hitherto. Investments sustained a fair rally, but the continued need of issuing housing loans tends to depress prices in the end. A marked improvement in the Paris cheque has stopped the sale of securities from France; indeed, a certain amount of buying came from Paris, especially for oil shares, therefore the Stock markets have recovered from the wane of liquidation and are disposed to improve. South African mining shares improved largely on the attitude of Paris, assisted by the altered condition of the South African Bank exchanges. At auctions, on July 19th, there was a very poor demand for Cape wools, practically no Greases being sold at from 10 to 15 per cent. lower. Other kinds of wool suffered, but not quite so much as Greases.

IRON AND STEEL.

Oversea supplies are coming forward slowly. For example, bar iron and steel ordered and accepted eight months ago are not yet delivered. The prices quoted then have increased about 2-3rds, so that the book landed cost is more than the selling price in Johannesburg, especially for spot cash. This is explained by a few importers having to realise quickly to meet bank commitments, particularly when the managers were not in the best of humours to extend or grant overdrafts. There is a great scarcity of steel plates as very few are coming forward, and they will be dearer owing to the drop of the premium on the Exchange, which means about 10 per cent. on landed cost. Imported mild steel for ¼ and 5-16, 70s. when obtainable; 3-8, 50s.; ½, 47s. 6d.; 5-8, 45s. to 47s. 6d.; larger sizes,40s. to 42s. 6d. 4in. to 7in. round mild steel, 55s. to 65s. Flat bars iron and steel, 5in. to 7in., 55s. Another firm's notes are:—Things are very quiet on the commercial Exchange, but not at all a bad tone, as the financial outlook is considered brighter. There is a shortage of steel plates—one-eighths are as high as 70s., when obtainable; imported milde steel, 40s. (English price, 50s. to 52s. 6d.), American 37s. 6d. to 40s. in Johannesburg. Shovels very scarce at 70s. per dozen, and even more. Prices are hardening owing to increased charges, cost of raw material and alteration in Exchange. Bar iron is £32 a ton in England, and here 32s. ea. per 100lbs.

There are critical times in Britain on account of the rise is wages, which last time meant 7½ per cent. Another firm's report says: Imported mild steel, 37s. 6d. to 40s.; wire nails, 52s. 6d. to 65s.; brass rods, 1s. 9d. to 2s.; plates, 2s. 6d.; shafting, 7½d. to 8½d. per lb. mild steel 7½d., hollow 1s. 3d.; picks, 2½ and 3lbs., 37s. 6d. per doz.; 4lbs., 45s.; 6lb.s, 63s. 6d.; 7lbs., 72s. 6d.; shovels, 75s. per doz., and likely to go higher, American and Canadian probably a little cheaper; bolts and nuts, 3-8in., 1s. 6d. per lb; ½in., 85s. per 100lbs.; 5-8in., 80s.; ¾in. and 7-8in., 70s. to 75s.

Lardine, Limited

(Incorporated in the Transvaal.)

DECLARATION OF DIVIDEND NO. 2.

A Dividend of 7½ per cent. (1s. 6d. per share) has been declared by the Board for the period ending 30th June, 1920 (three months) payable to shareholders registered in the books of the Company at the close of business on 19th August, 1920.

The Transfer Books will be closed from the 20th to 31st August, 1920, both days inclusive.

By Order of the Board,
LARDINE, LIMITED.
C. H. NORMAN, Acting Secretary.

Head Office: Germiston North.
P.O. Box 202, Germiston. 20th July, 1920.

ALMOST
2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

TIMBER, AND MEN FROM HOME.

Quite decent supplies of Baltic timber have arrived at the coast and are dribbling through to Johannesburg, simply because the railway's poor facilities cannot bring them faster. Probably in another months' time, when we feel the full force of the Baltic consignments, an expert in the business says prices will no doubt be much cheaper. Deals and scantlings are 2s. 1d. to 2s. 2d. for spot delivery, and about 2s. to arrive; floorings, 10¼d. to 10½d.; ceilings, 7½d. to 7½d.; galvanised iron, 24 gauge, 1s. 6d. to 1s. 7d., according to the lengths and quantities required. Business is still fair, and more contracts are being offered for tendering. There have been complaints for some time that really good building mechanics are scarce. A word of explanation is here advisable, as a few bricklayers and carpenters have been consulted, and information is that there are comparatively few men as a surplus available who have learned their trade in first class workshops. There are, however, a good many who have a fair smattering of the various departments, but are far from competent in taking the lead in a first class building in our city or the best residential suburbs. On man only last week left his job in a huff because he was asked to do the corners and decorating work, and yet he was only getting the same pay as a very ordinary workman who followed on and did all the plain work. A carpenter was heard to remark, "There are plenty of 'fixers," but not all-round carpenters and joiners." To cope with this evil, the employers are advertising in Great Britain for building artizans to come to South Africa.

In the Assembly on Tuesday Mr. Drew put a long question to the Minister of Industries with reference to an attempt to get building trade artisans from Britain.

Did the Minister know, he asked, firstly, that the National Federation of Building Trade Employers in South Africa was advertising in Great Britain for artisans to come to South Africa, as follows:—(a) That there was a shortage of skilled labour in the building trade, and that work was steady and plentiful, with wages ranging from 3s. 6d. to 4s. per hour; (b) that board and lodging could readily be obtained by single men in any or all the principal centres of the Union at or from £8 per month; (c) that in view of the scarcity of houses in South Africa married men should not come to this country?

The Minister replied in the affirmative.

Secondly, the hon. member enquired for statistics as to the state of the building trade, and the Minister replied that, according to the reports of the inspectors of white labour, a certain shortage of skilled labour in the trade did exist, and would probably continue for some time. He regretted that he had no statistics at present.

ALLEN, WACK &
SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

Thirdly, the Minister admitted that the High Commissioner in London had been asked to approve of the Federation's advertisement, and in answer to other queries said the High Commissioner had referred the matter to the department, which had consulted the Inspector of White Labour. The High Commissioner had been informed that he should not endorse officially every statement in the circular sent, but that persons desirous of satisfying themselves as to the bona fides of the advertisement could apply at his office.

It was understood, added the Minister, that the Inspector of White Labour had consulted the master builders. It was believed that an increase in skilled labour in the building trade would help to relieve the position as regards arrears of building, and would also offer increased opportunity for an additional number of apprentices in this trade, thus providing a further much-needed outlet for the youth of the country.

ELECTRICAL GOODS.

Business in electrical materials is at present quiescent, both in town and country, as people think that by waiting a little longer they will get things cheaper. This view, which some dealers poohpoohed about six months or more ago as absurd, in face of the conditions and prices obtaining then, and likely to obtain for some considerable time to come, is now looked upon by other dealers as not altogether improbable. As a matter of fact, prices to-day for most electrical wares have a downward tendency, and as large supplies, we understand, are on the water and expected shortly to arrive, there seems every prospect of prices still further receding—if not greatly, at any rate to some extent on ruling rates. Ceiling roses are now not nearly so scarce, but adaptors are still wanting. Wiring is fairly plentiful. There are no big contracts going at present.

TREND OF THINGS.

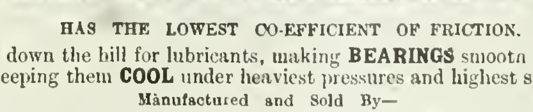
The news generally is rather good, as Russia accepts the Peace Proposals at a Conference to be held in London, which has caused a decidedly optimistic feeling throughout trade circles, as it is recognised—from the man in the street to the highest financier—that the sooner the world gets peace, and starts producing, then we can reckon upon something like financial stability. At an auction sale during the week a coal farm in the Middelburg district realised £5,300, and also a small farm in Bechuanaland fetched £300. Otherwise the market was no better for property sales. The feature is the sale of the coal farm, which supports our previous statement that there are persistent inquiries for this class of properties, which is said to be quite 25 per cent. up as compared with a few months ago. In this connection there is a further revival for oil shale farms on account of the worldwide shortage of paraffin and crude oil shale for shipping fuel. In what may be termed the African oil district in the Wakkerstroom area several native gangs have been united under an engineer, especially testing the capabilities for crude oil on a farm for which a decent option money was paid.

STRAY NOTES.

A shipment of 400,000 pounds of German dyes, consigned to the United States, and held up in Rotterdam for several months, because of the dock strike, has been released, and has now reached America. The German vat dyes were ordered because of the inability of American dye manufacturers to produce dyes in sufficient quantities for their textile industry. Under the regulations authorised by the War Trade Board Section of the State Department, the textile industries were permitted to import sufficient to meet their requirements for the first six months of the present year. The purchase from the Reparations Commission followed, but the amount available to the Commission proved insufficient to meet the American demand, and agreement was entered into for the remainder with the German dye cartel

TRADE MARK

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.



HAS THE LOWEST CO-EFFICIENT OF FRICTION.

KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.

Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg
Bulawayo and Salisbury.

ENGINEERING SECTION.

SOUTH AFRICAN INSTITUTION OF ENGINEERS—VALEDICTORY ADDRESS.

By the Retiring President (W. Elsdon-Dew).

During the past year your Institution has passed through a most important era in its history, for the industry with which it is closely associated has experienced some of the most difficult problems it has ever been faced with, and your Institution has an important duty to assist in solving these problems.

The annual report which is in your hands reveals the wide scope of the direct work of the Institution, but only in a very small way does it reveal the work of your Council and sub-committees in exerting their energies to broaden the influence of the scientific and technical professions in the development of South Africa generally. To-day engineers are probably more depended upon to accomplish the results than any other branch of work, and your Institution, in its progressive development, has maintained a high standard in the papers and discussions at the monthly meetings. The Editorial and Papers Committee has been under the able chairmanship of your Vice-President, Mr. J. W. Kirkland, and, in referring to the work of the Institution, I am sure you will appreciate the excellent work done by your Secretary, Mr. W. W. R. Jago. I personally feel that the continued success of your Institution is largely due to the untiring efforts of your Secretary, whose work and influence for the Institution appears to be ever widening, requiring extreme tact and careful administrative capacity. Allow me at this stage also to refer to the work of certain members of Council who decided not to stand for re-election. Our thanks are due to them for very substantial work, and I know you will acknowledge, without being invidious, the work of one in particular. I speak of Mr. E. J. Laschinger. I think you all know that he is a mountain of strength, and your Council feels that it cannot adequately express how much they will miss him, and while appreciating his feeling that he should make room for new blood on the Council, we feel that his loss will be seriously felt. His versatility is so well known to you all that I am sure you will join me in expressing the hope that his retirement from office will be only temporary, and that he will return to the Council, again to give us of his immense fund of knowledge and experience.

During the last year your Institution had an irreparable loss, through an unfortunate accident, in the untimely death of your immediate past President, Mr. C. D. Leslie, and I lost that important help which the past President can render to a new President, and we have all lost a friend and *confrere* whose personal example in working for the good of South Africa will be recognised as outstanding and of extreme importance during a career of the highest technical labour and administrative work in the mining industry. May his memory be always revered and be an example to us all.

CONDITIONS IN THE MINING INDUSTRY.

In endeavouring to choose a subject for a Valedictory Address, I felt I would be wanting in my duty to your Institution if I did not review the conditions as now obtaining in the mining industry. The position is now so very acute that it would be folly not to face it, and indicate as far as possible where one considers a solution to be found. It happens that your late President, Mr. C. D. Leslie, in his Valedictory Address just a year ago, sounded a very strong note of warning, and that address was circulated far and wide; but, either fortunately or unfortunately, the change brought about by the premium on gold has allowed people to lose sight of all that was referred to. But what was true a year ago is to-day doubly so, if one were to review the position. The drop in the premium has already caused the shutting down of certain mines, resulting in enquiries being held to investigate whether closing down was justifiable or not. Well, gentlemen, if good can come out of evil, perhaps what is happening will bear good fruit, for we are having some most illuminating evidence, wherein the workers acknowledge that inefficiency undoubtedly exists, but they do not blame themselves; they blame the management. I cannot do better than repeat a certain paragraph in the address already referred to:—

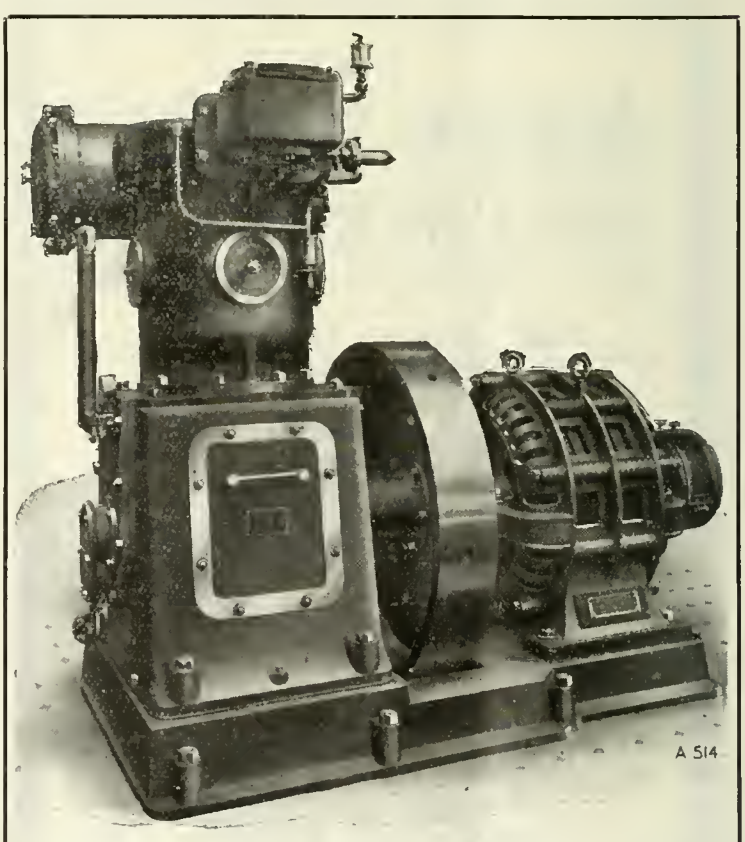
> "It has to be admitted that, by protecting negligent and insubordinate employees, and causing stoppage of work on their behalf or in case of dispute, underground men have caused the mining industry to suffer greatly and unfairly, but it is to be hoped that this is a passing phase. Such action is quite opposed to true trade unionist principles, which are higher and sounder than the too-often accepted interpretation of them. They stand for a fair day's work and the upholding of proper and necessary discipline, as well as for a fair day's pay. In order to deal equitably with these important questions, employees and workmen must aproach them in a more constructive spirit than prevails to-day, and with much more knowledge of each other's requirements and of the direction towards which their joint action is leading. It is necessary to realise the unemployment and other evils which must follow upon a low rate of production, and I fear that the "we-demand" attitude is far from being conducive to the satisfactory settlement of employment questions."

Now the conditions as outlined, in my opinion, show very clearly how labour has influenced conditions as now obtaining. During the war, and since, every effort has been made to conciliate labour and ameliorate hardships, and I fear the employer has failed to recognise that the non-efficiency in labour would ultimately lead to disaster. As Mr. C. D. Leslie said, "the reluctance of the employer to raise the question of efficiency implies either want of frankness which might beget distrust, or fear of dissension, which thorough and open examination of the subject might cause."

It is now accepted by labour, this state of inefficiency, and therefore the path is open for a thorough examination of the subject.

Labour witnesses agree that increased output by all is possible, and apparently it has already had an important effect, for certain mines have accepted the decision of the management for retrenchment and increased output per man. Well, there is a great hope for this movement, and out of it some mines can be saved, but I hope the lesson to be learnt will not stop there.

What this country is suffering from other countries are also in difficulties over, and the troubles in one country add to the difficulties in others. High costs of every necessity have prevailed, and although



"SENTINEL" AIR COMPRESSORS
Large Stocks carried in South Africa, ready for immediate delivery,
Steam Driven or Belt Drives.
SOLE AGENTS:
THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

from time to time it has been preached by speakers that increased production is the cure, yet only now do the workers appear to recognise it. As this wave of knowledge proceeds, so increased production will bring down costs and make many things possible. Nearly every day one reads that this knowledge is bearing fruit, for the short-sighted policy of restricted output is now reacting so that everyone is feeling the results, viz., increased cost of living. As has been pointed out by many, the inevitable result must react on the worker, and if one my quote, I feel it should be brought home to all that to "do your duty in that state of life in which it has pleased God to place you" will help more than anything else to improve conditions. At present the urgent necessity for the mining industry is increased efficiency, and, without hurting anyone, I consider that it is possible for everyone to do a better day's work. Do not make any mistake, it is possible, and if only one could get away from politics and get down to hard work everyone would be better off. As engineers, we are supposed to be able to do things well; if even in the doing it may hurt a few, I think the broader view should be aimed at that is, the greater good for the greater number. Surely as engineers, we can recognise this: that although the great upheaval of the war must affect the whole economic position, we must now get back to conditions where supply and demand are more equally balanced. Conditions to-day are unhealthy; one cannot but view the whole state of distrust that prevails with a certain feeling of anxiety, and yet I think it will be a case of history repeating itself. The recommendations of the Low Grade Mines Commission contain some constructive suggestions, which everyone hopes will bear good fruit.

Allow me to repeat what I said a year ago: "I venture to say that it is the duty of men of good will to avoid at this juncture of all others the sin of pessimism. The future of the world depends in a large degree on a victory of the optimistic over the pessimistic view of life."

I have dealt with a problem that is exercising all our minds at present, but I would like also to touch on some of the most important developments in engineering during the last year that may affect this Institution and the development of South Africa generally.

For the scientific societies generally I think there has been no more important event than the consummation of the scheme for closer working of the technical societies as now accomplished. You took part last week in the inaugural meeting in the new home of the associated technical and scientific societies, and I would like to refer to the indebtedness of all of us to the great work and consistent efforts of Mr. Percy Cazalet; so much is due to his personal endeavour that I cannot find words to state all that lies to his door in this.

You were asked earlier this evening to confirm at a Special General Meeting the proposal from the Council to donate a sum of £500 out of the Capital Funds, and this has been agreed to, but do not let us lose sight of our individual responsibility in this. We have already received to date £265 from some 25 members: our total membership is to-day 589. As the appeal sent to every member indicates, we are out to get £2,000, and I feel sure if each member will just think for a moment what any effort of his may mean, surely each must recognise that their duty is to give what he can, and the sooner he does it the more effective it will be. Do not think for a moment that the Council or any of us who have gone into this matter will allow you any quiet unless each and everyone has done something towards this great advance. Surely everyone must recognise that the technical and scientific societies by the closer working programme are going to be of immeasurable importance in the development of this marvellous country. What has been done up to now is but a small beginning towards a tremendous future, and I can only emphasise the necessity for you to do your duty and help on the good work. The far-reaching effects of this central housing scheme and closer working can be enormous, and all the associated societies must assist in the broadest possible manner in furthering the highest ideals for technical and scientific advance. I think it is being gradually recognised that the scientifically and technically trained men are worthy of the highest offices in industry and commerce, and I feel sure that the general benefit to all concerned, will be reflected in the better recognition of each other's aims and ideals.

ELECTRIFICATION OF RAILWAYS.

I consider the decision of the Union Government, to make a start, although a very small start, on the electrification of part of the railway system is the forerunner of most important developments for South Africa. This country has the advantage of learning what to avoid, and as Great Britain has now recognised the importance of super-power stations and the conservation of her coal resources, so it points to what South Africa will do in having power available along all railway lines, and thus standard systems of supply will prevail. I consider this important side of supply of cheap power is not to be lost sight of, as all towns and industries should, with advantage, utilise such power when it may become available. It is recognised that in this great scheme of the electrification of the railways advantage will be taken to utilise coal in its most economical form, and as England has learnt the wasteful use of a national asset, so must South Africa take a lesson and conserve the national assets she has in her coal, and also from coal obtain such by products as will provide raw materials, etc., for many industries.

The Scientific Committee, with which your Institution is so closely associated, which is advising the Government will, no doubt, see that the benefits to be obtained from standardisation will not be lost sight of, and wherever industries and municipalities are likely to want power they should adopt the standards which are accepted as being most suitable, and look out for the future, when they can get power supply from the railway system or other super-power plants.

The conquest of the air, if one may so term it, has been exemplified by the arrival here during the year of the intrepid airmen Van Ryneveld and Brand, both South Africans, whose surmounting of innumerable difficulties is the admiration of the whole world. The success of commercial aviation will do much for the development of South Africa, and in this direction we may anticipate much more information than is at present available. As engineers, we can hope the efforts of the local Aviation Company will have every success, for with their success further developments must follow.

STUDENT SECTION OF THE INSTITUTION.

I have consistently urged during my year of office the importance of the Students' Section, and it is extremely gratifying to see such a substantial increase in membership; it now numbers 114. The Students' Section holds its regular meetings, and, as you see, the Student Members read and discuss some very important papers. This indicates a most healthy and hopeful condition for the future in the usefulness and expansion of the Institution amongst its young members.

LOCAL INDUSTRIES.

You have from time to time had particulars of the extraordinary expansion of local industries, and I know that the advisability of establishing factories in this country is being serious considered by many large producers. Now that it is recognised that any form of raw material is available in South Africa, this is not surprising, and, in fact, the Government must foster this development in every way. Its effect is so far-reaching that we can only refer to what is being done in Australia and America to learn some very good lessons. The potentialities of this country cannot be gauged by the limited horizon of the Rand. The size of the Union, with still further possibilities of being joined up in the North and in the West, makes one feel that this Institution must play a most important part in the future. It is of extreme interest to see how the Institution has revived its activities during the last year, and I commend to you all an earnest request to make your Institution still greater by giving your support to all its aims and objects.

SOUTH AFRICAN RAILWAYS AND HARBOURS.

Applications are invited for the position of Manager of the new Steel Foundry now in course of erection at Pretoria.

Applicants must have a thorough practical experience in the manufacture of steel castings by the "Tropenas" process, have a thorough knowledge of the working of modern annealing furnaces, core stoves, shot blast, plant, etc., and must have a thorough analytical training and be capable of taking entire control of the Steel Foundry Laboratory in addition to the Steel Foundry.

Applicants should communicate direct with the Chief Mechanical Engineer, Pretoria, from whom full particulars can be obtained.

Johannesburg, W. W. HOY,
26th July, 1920. General Manager.

THE KNIGHTS DEEP, LTD.

(Incorporated in the Transvaal.)

Notice to Shareholders.

Notice is Hereby Given that the Twenty-second Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Consolidated Gold Fields Building, Simmonds Street, Johannesburg, on FRIDAY, the 29th OCTOBER, 1920, at 12 o'clock noon, for the following purposes:

(1) To receive Reports of the Directors and Auditors and to consider the Balance Sheet as at 31st July, 1920, and Working Expenditure and Revenue Account for the year ended 31st July, 1920.
(2) To elect two Directors in the places of Lieut.-Colonel F. Leslie Brown, D.S.O., and Mr. W. S. Smits, who retire by rotation, but are eligible and offer themselves for re-election.
(3) To appoint Auditors for the current year and to fix the remuneration for the past year's audit.
(4) To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 15th to 29th October, 1920, both days inclusive.

By Order of the Board.
NEW CONSOLIDATED GOLDFIELDS, LIMITED.
Secretaries.
Per A. C. GRANT.

Head Office:
Consolidated Goldfields Buildings,
Simmonds Street, Johannesburg.
26th July, 1920.

STEEL WORKS ELECTRIFICATION.

Electrification of a Three-High Merchant Mill at the Works of Messrs. Bolckow, Vaughan & Co., Ltd.

What is probably the largest electrically-driven non-reversing rolling mill in Great Britain is that recently installed at the works of Messrs. Bolckow, Vaughan & Co., Ltd., in Middlesborough.

The electrical equipment was manufactured and supplied by the General Electric Co., Ltd., England (who are represented in South Africa by the British General Electric Co., Ltd.), and has a high efficiency, as will be seen from the figures given further on. In the case under consideration the mill is of the three-high type, tilting tables being provided for elevating the plates up to the higher pair of rolls. With such a non-reversing mill, a fly-wheel with a large amount of stored energy can be used, so that a smaller motor is required than with an Ilgner set, and in addition the efficiency is higher.

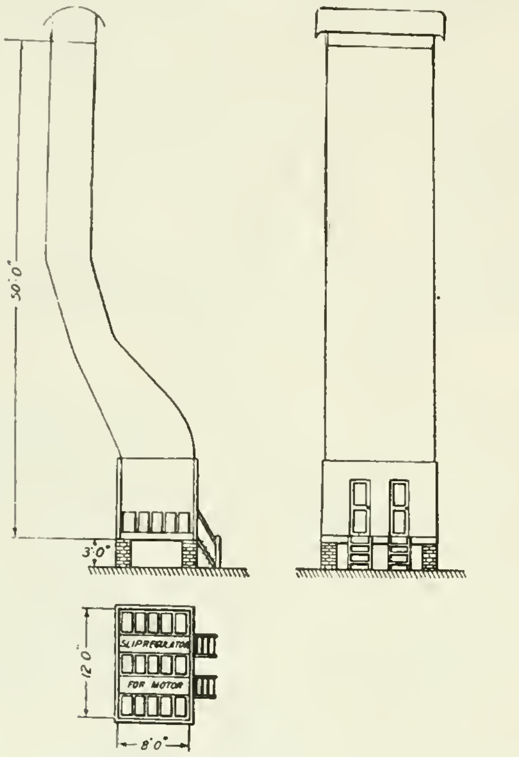


Fig. 2.—Arrangement of G.E.C. slip regulator with natural ventilating shaft.

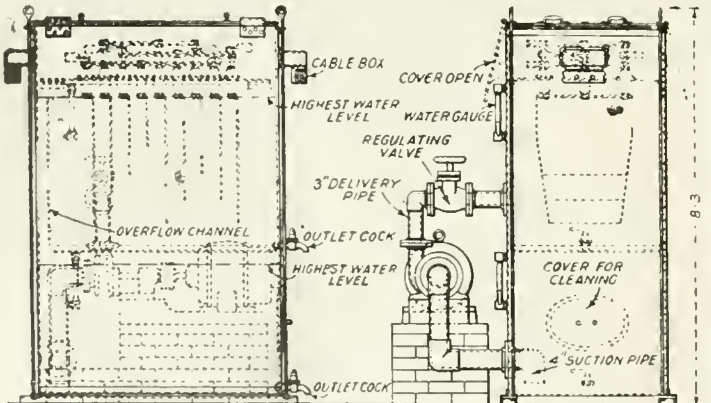


Fig. 3.—Outline of 3,000 h.p. G.E.C. liquid starter.

The motor is a 3,000 normal b.h.p "Witton" motor, and is designed for running on a 2,400 volt, 60 cycle three-phase circuit, at a normal speed of 514 r.p.m. The guaranteed efficiency of the motor is 95 per cent. at full load, 94·5 per cent. at three-quarter load, and 93 per cent. at half load: at the same loads the power factor is 85 per cent., 80 per cent., and 70 per cent. respectively. The overload capacity is not less than 25 per cent. for two hours without undue heating, and the machine will stand an overload of 100 per cent. for short periods without injury or damage.

The construction of the motor is particularly substantial, the shaft being 12 inches diameter in the bearings. The latter are of the pedestal type with cast iron bearing bushes, which are lined with anti-friction white metal: the weight is $5\frac{1}{4}$ tons. The bearing surface is very large in order to ensure cool running at high speed. Oil gauges and draw-off cocks are provided, and every bearing is fitted wtih special hinged covers to allow easy inspection during the running of the machine. The lubrication arrangements are of interest. In addition to ring lubrication, flood lubrication is also arranged for by means of a small pump, chain driven from the main shaft. The bed plate weighs $7\frac{1}{4}$ tons.

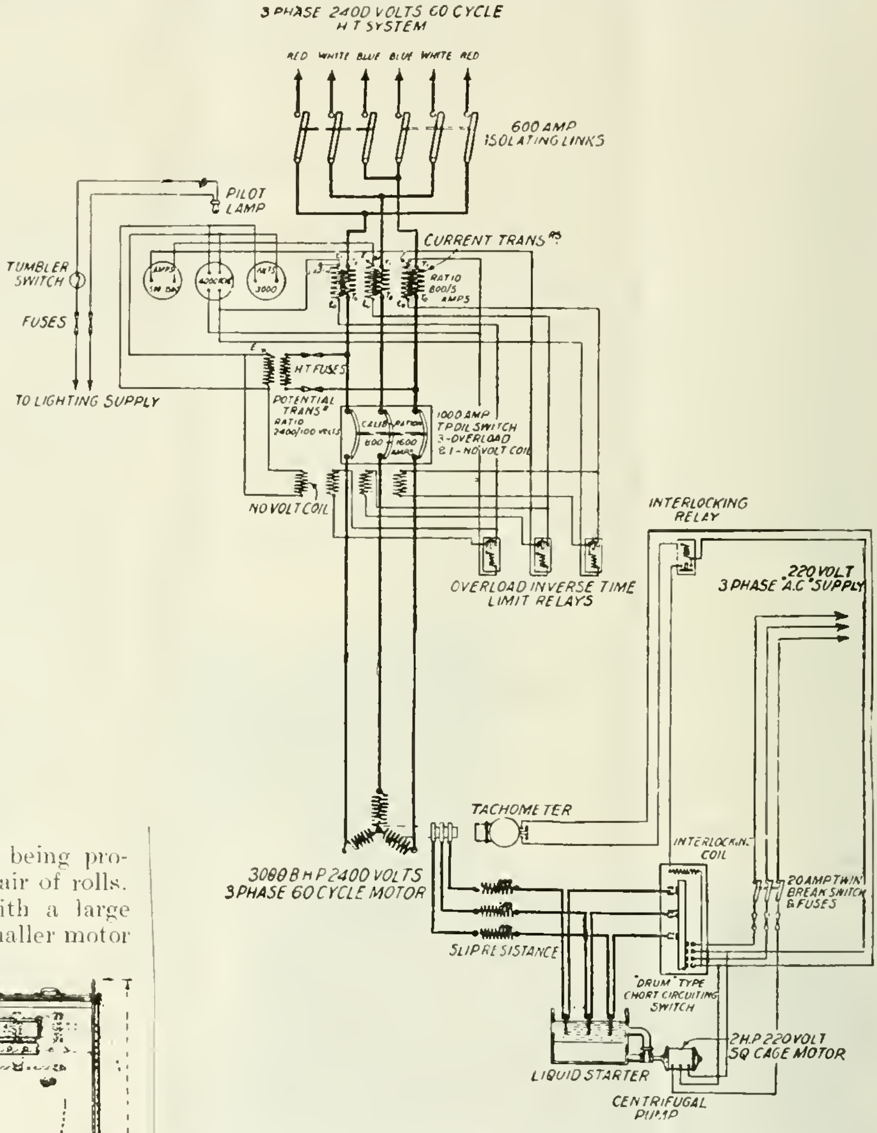

3 PHASE 2400 VOLTS 60 CYCLE H T SYSTEM
RED WHITE BLUE BLUE WHITE RED
600 AMP ISOLATING LINKS
PILOT LAMP
TUMBLER SWITCH
FUSES
TO LIGHTING SUPPLY
CURRENT TRANSRS
AMPS
400 KW
AMPS 3000
RATIO 800/5 AMPS
HT FUSES
POTENTIAL TRANSR
RATIO 2400/100 VOLTS
CALIBRATION 600 1600 AMPS
1000 AMP TP OIL SWITCH 3-OVERLOAD & 1-NO VOLT COIL
NO VOLT COIL
OVERLOAD INVERSE TIME LIMIT RELAYS
INTERLOCKING RELAY
220 VOLT 3 PHASE A.C. SUPPLY
TACHOMETER
3000 B H P 2400 VOLTS 3 PHASE 60 CYCLE MOTOR
INTERLOCKING COIL
20 AMP TWIN BREAK SWITCH & FUSES
SLIP RESISTANCE
"DRUM" TYPE SHORT CIRCUITING SWITCH
2 H.P 220 VOLT SQ CAGE MOTOR
LIQUID STARTER
CENTRIFUGAL PUMP

Fig. 4.—Diagram of connections of high tension G.E.C. switchgear for 3,000 b.h.p. (normal) 2,400 volt, three-phase, 60 cycle "Witton" motor for Bolckow, Vaughan's rolling mill.

The main motor shaft is coupled to the small counter-shaft on which the high-speed fly wheel is mounted. This has an outside diameter of 11ft. $10\frac{1}{2}$in., and a total weight of 41·7 tons. The total energy stored is between 114 and 115 million ft.-lb. A 15 per cent. drop in speed enables the fly-wheel to give out approximately 20 million ft-lb. of energy.

The stator and rotor are both bar wound, the stator end turns being very solidly supported to prevent movement on sudden shocks. The rotor spider is of cast steel. The slip rings are of phosphor-bronze, proportioned to carry the current continuously, so that the machine can be used with a slip regulator. The weight of the stator is 13½ tons and the rotor 13¼ tons, the copper on the stator accounting for 3,200 lb., and on the rotor 2,200 lb.; the stator iron weighs 12 tons and the rotor iron 8½ tons, and rotor steel 3 tons.

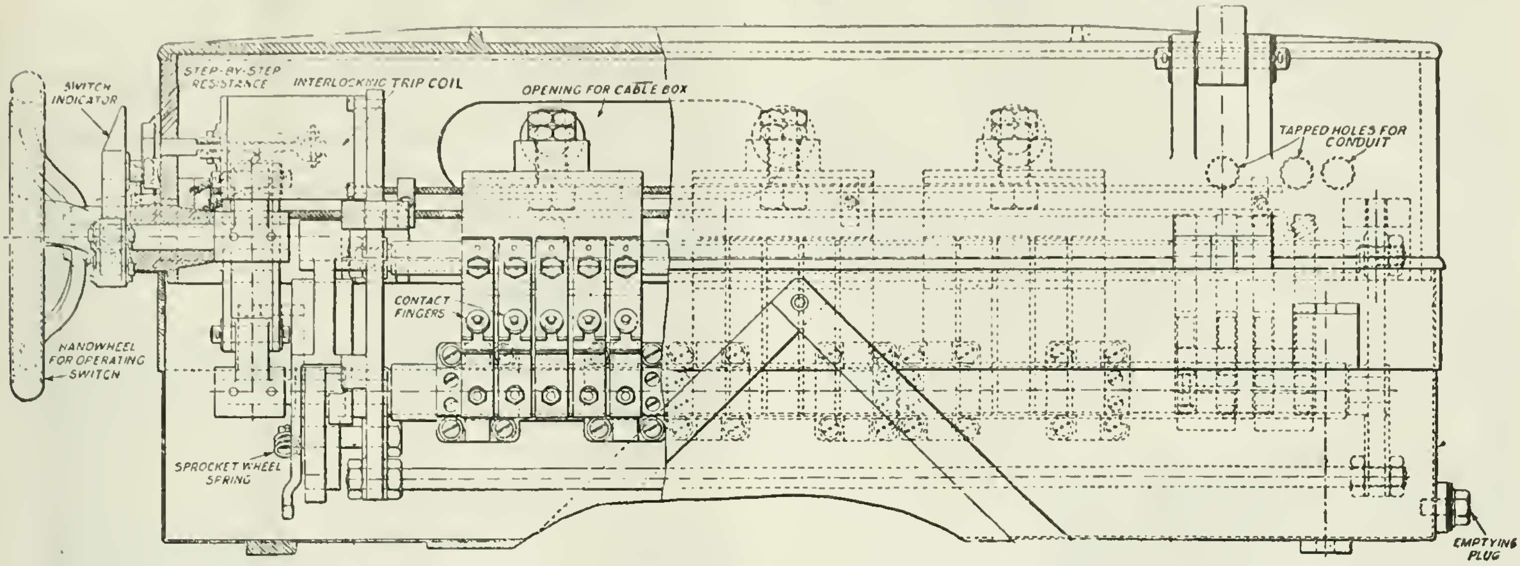


Fig. 5.—Longitudinal diagram of G.E.C. oil-immersed switch for short-circuiting the liquid starter.

It is necessary for the motor to slow up on heavy load so as to enable the fly-wheel to do its share of the work. The fluctuations of load being very rapid, and as it is considered doubtful whether an automatic arrangement would respond quickly enough, it has been decided first of all to instal a permanent grid resistance, and when the conditions of working have been fully noted, contactor gear can be installed and adjusted to vary the resistance automatically, according to the requirements of the load, should it be thought desirable to do this.

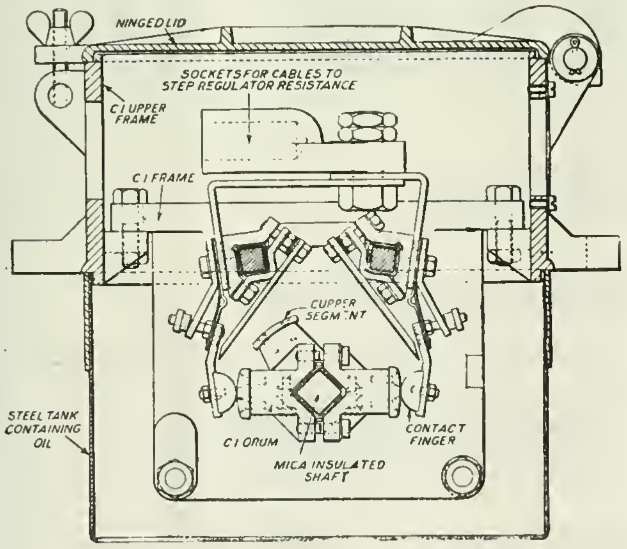


Fig. 6.—Transverse diagram of G.E.C. oil-immersed switch for short-circuiting the liquid starter.

Tappings are arranged so that more or less resistance can be connected easily in circuit. It is possible that the motor may be required to slow up as much as 15 per cent., and the resistances are intended to be large enough to dissipate 300 k.w. continuously, although it is not likely that this will be required. Special arrangements for cooling are necessary, and the grids are mounted in a separate chamber with ventilating holes through the floor under each bank of grids. The chambers continue to form a chimney above the grids, so that a large volume of air will be drawn through the grids by natural ventilation (see Fig. 2). Natural draught was adopted so as to obtain the utmost reliability.

The motor is started by a liquid starter of special design. The starter, shown diagrammatically in Fig. 3, is of the rising liquid type, mistake-proof interlocks having been provided. On putting the starting switch into the "start" position, current is switched on to the squirrel-cage motor driving the pump, which begins to deliver liquid to the upper tank of the starter in which the fixed electrodes are carried. As the liquid rises up the electrodes the motor runs up to full speed. When full speed is attained, the driver throws the starting switch into the full-speed position, when the starter is short-circuited by an oil switch and the pump motor stopped. The liquid then runs back through the pump into the bottom tank ready for the next start. An interlock is provided, so that the starting switch cannot be thrown into the short-circuiting position unless the motor has attained a pre-determined speed. A step-by-step motion likewise prevents the short-circuiting switch being thrown straight away to the full-speed position.

A drawing of the short-circuiting switch is given in Figs. 5 and 6. It is of the oil-immersed type. The current dealt with is 1,200 amperes per phase. It will be seen that the rotating portion is on a mica insulated drum, and is moved by means of an exterior handle into contact with the controller fingers.

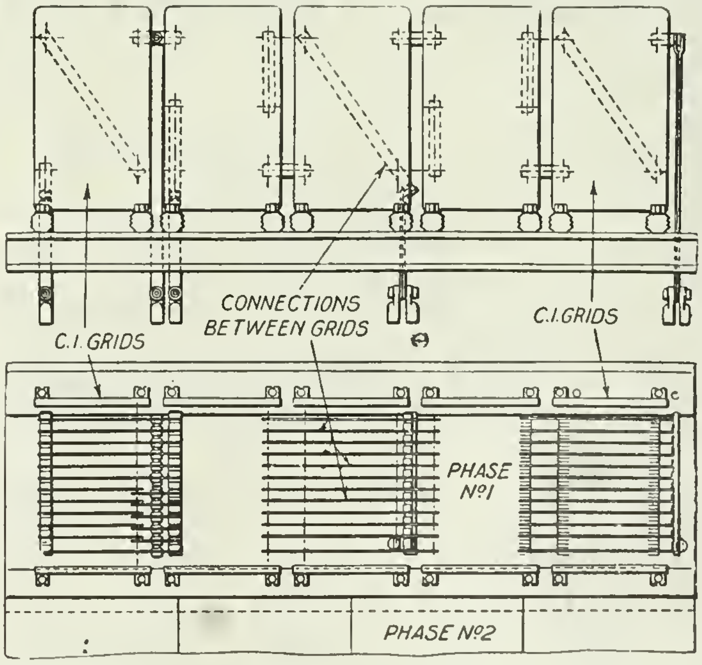


Fig. 7.—Elevation and plan of G.E.C. slip resistance.

The high tension side of the motor is controlled by a standard G.E.C. boiler-plate high tension cubicle of the lock-up type. The cubicle forms the connecting point on a ring main, so that it is provided with two sets of isolating switches for isolating either of the two incoming feeders. It is provided with a free-handle oil-break switch with inverse, overload and time limit relays; ammeter, voltmeter, indicating wattmeter, and all the usual current and potential transformers. A complete diagram of connections is given in Fig. 4. The system of interlocking deals with all possible mistakes except one, and that is it should not be possible to close the oil-switch with the liquid starter already short circuited. This is guarded against by means of a mechanical interlock, not shown on the drawing, between the short-circuiting switch (Figs. 5 and 6) and the oil switch panel. In the event of the oil switch opening circuit an interlocking bar comes into operation, which prevents it closing again unless the short-circuiting switch is brought to the " off " position. As the tank automatically empties, when short circuited by the oil switch, the stator circuit can only be closed by means of the main oil switch when the maximum amount of resistance is in the rotor circuit.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative :
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices :
c/o STURROCK & CO.,
BARSDORF'S BLDGS.,
Telegrams : "BRITFLOT." Phones 2596-7.

Tel. 1264 Central. P.O. Box 2337.

THE ROPE RECONSTRUCTION CO.
— LIMITED, —
Maxwell Buildings,
Harrison Street, Johannesburg.

TO COLLIERY MANAGERS.

We supply Reconstructed Ropes for Mechanical Haulage, 7/8 inch and 1 inch diameter, 2/- per yard, and guarantee the life. :: :: ::

HAULAGES SUPPLIED AND ERECTED.

SOUTH AFRICAN MINING & ENGINEERING JOURNAL

ESTABLISHED 1891. ESTABLISHED 1891.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries

VOL. XXIX., PART II.] AUGUST 7, 1920. [No. 1506.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: "**MINING JOURNAL.**"

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Notes and News 571

Topics of the Week:

The Reform of the Miners' Phthisis Act 573

Deep Level Alluvial Leads 575

The Coalfields of Natal: A Retrospect 577

Progress with the Barnato Group 579

Latest from the "C.M.S." Group 581

Modderfontein East: Latest Development Results ... 583

The Geological Survey: Annual Report of the Director 585

The Week in the Sharemarket 587

The Annual Report of the U.S. Bureau of Mines 588

Tungsten Ore Occurrences in South Africa 589

The Report of the British Non-Ferrous Committee ... 590

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 591

Notes and News.

Daggafontein Mines.

The following cable has been dispatched to the London office of the Daggafontein Mines for publication: "Reef struck at depth of 3,918 feet in shaft No. 2. Assay results of the shaft section will be published as soon as available."

* * * *

Important Change in Old-established Firm.

We are announcing in our advertisement columns this week an important change in the old-established firm of Sturrock & Company. The business of this partnership has grown so much of recent years that it has become necessary to enlarge its scope of operations in a number of ways. Mr. F. Claud Sturrock, M.I.Mech.E., and Mr. Herbert Freeland, the present partners, will continue their association with the new company as directors, and will be joined in this capacity by Mr. H. B. Maxwell, M.I.E.E., who was for many years associated with the firm of Reunert & Lenz, Ltd. The new company will be called Sturrock (South Africa), Limited, and will continue the business policy and connection of the old company.

* * * *

South African Carbide.

The following cable has been received in London from Natal from the South African Carbide and By-Products Company's engineers, Ballengeich, Ingagane:—"Excavations for retort-house, producer plant, sulphate-house, carbide factory and railway siding; completed railway material delivered on site, also 280 tons of aggregate, 700 tons of sand and 50 tons of cement. Total amount of sandstone excavated, 1,350 tons. Transport progressing satisfactorily. Brickmaking has commenced. Offices, stores and workshops are completed; 12 whites and 95 natives employed." The consulting engineers further report that the "gas producer" plant is nearly completed, and a considerable portion shipped to South Africa. The resident engineer for the carbide works has arrived in South Africa.

* * * *

The Coal Trade.

Col. Gordon Sandilands writes:

Some misconception exists in the public mind in regard to at least one aspect of the coal trade. A simple statement, shorn of the obscurity which at times shrouds Parliamentary questions and Ministerial replies, may not be amiss. In pre-War days—when Transvaal coal was super-abundant and its markets limited—the trading vantage lay with the inland consumer. He could pick and choose, and wisely did. He made long contracts at cheap prices with the purveyors of the best. Among such inland consumers were the S.A.R. Administration and the gold mines. In present post-War days an almost limitless overseas market lies ready to hand at South African ports. The key to this market is in the hands of the Government, Where also rests the power to regulate railway rates which will either open or close the portals of the world's markets to South African coal. A single condition only is imposed—the quality of export coal must suffice to compete in the open markets of the world. Under the circumstances, what is more natural than that "uncontracted suppliers" should rush their product to the best paying market and recoup themselves for the preceding lean years? What more natural, too, than that the inland consumers should insist upon the terms of their earlier contracts? What, then, is the conclusion of the whole matter? None other than that inferior quality coals are forced into the export market while the better go to the inland consumer. An admirable position, truly, were it not (a) in the interests of the Union to build up its export trade; (b) in the interests of the inland consumer to utilise the less costly small coals for industries and release large coals for their proper specific purposes. The economic use of our fuel resources is surely as of vital concern to South Africa as it is one of the burning questions of the day in Europe and the United States.

Tati Company.

The report of the Tati Company for the year ended 29th February, 1920, states that the accounts show a profit of £8,695, as compared with £4,935, making with the balance brought forward a total credit to profit and loss of £11,041. After deducting £971, income-tax, and £2,182, interest on Debenture stock, a balance of £7,888 remains to be carried forward. During the year Debenture stock, amounting to £18,985 was redeemed, reducing the stock outstanding to £54,553. Since the close of the books a further amount of £11,281 has been redeemed, and the sum outstanding to date is £43,272. Cash and investments amounted on 29th February last to £34,374. A block of 10,264 acres was sold during the year on instalment terms, and since the date of the accounts a further 2,687 acres have been sold for payment within six months. Twelve farms were let on permit of occupation, and since the date of the balance-sheet further permits over four farms, comprising 7,722 acres, have been granted, the total area thus held being increased from 46,874 to 77,446 acres. A larger stores trading business was done during the year and the profit has increased from £3,134 to £6,771.

* * * *

The Copper Situation.

Statistics concerning the stocks of copper on hand in Europe are given by Mr. John D. Ryan, president of the Copper Export Association, an organisation formed a little more than a year ago to facilitate and control the selling of copper abroad. According to Mr. Ryan, a year ago the European stocks, excluding those of the so-called Central Empires and Russia, aggregated 545 million pounds of new copper and 385 million pounds of copper in scrap. Thus the total stocks were 930 million pounds. The production during the year was 1,800 million pounds through refineries in the United States and 450 million pounds through refineries elsewhere. To this must be added 100 million pounds purchased by "producers," meaning selling-agencies presumably, from the surplus held by our Government, and the copper contents of Government stocks of scrap in the hands of manufacturers, this amounting to 150 million pounds, so that the grand total of European stock, world's production, and stocks acquired from our Government, was 3,430 million pounds. From this must be deducted an increase in American refinery stocks amounting to 240 million pounds and the estimated stocks of copper metal and scrap in Europe, amounting to 220 million pounds, or a total of 460 million pounds, which leaves an apparent world's consumption of 2,970 million pounds. This exceeds the production for any year in the history of the copper industry.

* * * *

Henderson's Transvaal Estates.

The report of Henderson's Transvaal Estates for the year ended 31st March, 1920, states that the result of operations shows a net profit amounting to £45,893, which with £43,478 brought forward makes £89,371 to credit of profit and loss. The directors recommend a dividend at the rate of 6 per cent., less tax, for the year, calculated on the amounts for the time being paid up, or credited as paid up, on the shares, leaving a balance of £47,103 to be carried forward. It is proposed that £5,000 be placed to reserve, which account will then stand at £45,000. With regard to subsidiary and other companies, the Henderson Consolidated Corporation shows that during the year there was an unprecedented demand for land at greatly increased prices; 50 farms, aggregating 261,121 acres, were disposed of. The surface rights only were sold, in all cases, with one exception, the corporation retaining full mineral rights. The corporation declared total dividends for 1919 amounting to 7½ per cent. During the current year the company has taken an interest on ground floor terms in a property in Rhodesia, on which large deposits of chrome and asbestos have been proved to exist. These deposits have been very fully reported upon by Mr. A. H. Ackerman, who was for several years resident engineer to the Chartered Company, and an arrangment has been come to with him to act as manager and consulting engineer for the new undertaking. The surface rights of 11 farms, aggregating 38,673 acres, have been sold during the year at satisfactory prices, but only a small portion of the profit on these sales appears in the accounts now submitted.

Another Promising Silver Property.

In our last issue we published a map of the farm Dwaarsfontein, showing the property of the Transvaal Silver Mines and the portion which had just been acquired from the Fergussons. We understand that the other portion shown, described as Shimwell's, is about to be floated into a company. For a considerable time past development work has been proceeding with the object of opening up sufficient ground to enable a geological report to be made on the property. The silver-lead lode has now been opened for a distance of about 200 yards and the lode well exposed throughout that entire length. The property is being reported upon by Mr. Oliver King, consulting engineer to the Transvaal Silver Mines, who has taken a series of samples across the lode. These samples have now been assayed, and the result is an average of 31·17 per cent. of lead and 39 ozs. of silver per ton. This lode has been proved right through this portion of the farm, which is 750 morgen in extent, giving almost a mile of ore body.

* * * *

The Nitrogen Problem.

Professor Wilkinson delivered a popular lecture on the Nitrogen Problem in connection with the meeting of the S.A. Association for the Advancement of Science at Bulawayo last week. He explained the importance of nitrogen in the production of the world's food, the absolute need of the element in order to make growth possible on soils exhausted by continuous cropping. Chilian nitrates proved excellent in reviving the capacity of the soil to produce foods. Nitrogen found in coal and obtainable in the form of ammonia began to be utilised in the early 'nineties. But the world's demands were growing faster than the possibilities of these two sources of artificial nitrogenous manures, and in 1898 Sir William Crookes pointed this out, and also drew attention to the oceans of free nitrogen present in the atmosphere, which plants, except legumes, were capable of using. In that connection, said the lecturer, it was worth noticing that twenty million tons of free nitrogen were estimated to exist over every square mile of the earth's surface. The solution of the problem of the conversion of this atmospheric nitrogen into a form capable of transference to the soil for utilisation by growing plants, particularly wheat, was one of the greatest scientific achievements of the present century. At considerable length the lecturer described the various processes of converting atmospheric nitrogen, some now in use commercially and others in the experimental stage. He described the enterprise shown on the European continent in this connection, and how Britain was at last actively interested and was establishing a plant which would make her independent of foreign supplies of nitrogen. Professor Wilkinson also told of South Africa's great annual importations of nitrogen compounds, mainly for the manufacture of explosives for mining, and then discussed the possibility of this country providing its own needs. There was one plant in South Africa, near Vryheid, Natal, in which the Mond process of burning coal to produce ammonium sulphate was carried on. The success of synthetic nitrogen processes dependent on cheap electrical power naturally turned thoughts to the country's only source of water power of any magnitude, the Victoria Falls. The most valuable data concerning the Falls he had been able to get were those given by the recent survey undertaken by the Rhodesia Resources Committee, which he believed confirmed the estimate previously made of 500,000 b.h.p. available. That such an amount of energy must remain indefinitely unutilised for the benefit of the country was difficult of belief, but on the other hand it should not be forgotten that in comparison with the water power available in other countries it was not by any means considerable in magnitude. Coal was another possible source of energy, but South Africa was not too well endowed with that in comparison with other countries, and its scientific utilisation was important in the national interest. The only other source of energy with which South Africa was endowed with in larger measure was the sun. Whether it would be possible to increase the potentiality of the sun's energy and thus obtain power was for future investigation and research. Serious attempts to solve that problem had already been made, and when it was achieved South Africa would be rich indeed.

TOPICS OF THE WEEK.

THE REFORM OF THE MINERS' PHTHISIS ACT.

Very valuable and important work has been unostentatiously done during the present session of the Union Parliament by the Select Committee on the working of the Miners' Phthisis Act of 1919. A Blue Book was issued this week containing the report of the Select Committee and the minutes of evidence given by the various witnesses. The latter included Messrs. W. Gemmill, McFie, Van Eyssen, James Whitehouse, George Barry and Doctors Orenstein, E. P. Baumann, Smith and Mavrogordato. The Labour organisations were represented among the witnesses by Messrs. J. F. Brown, J. S. F. Pretorius and P. J. Baird. The Select Committee consisted of the following: The Minister of Mines (in the chair), Mr. W. J. O'Brien, Dr. Visser, Dr. De Jager, Rev. M. Mullineux, and Messrs. Sampson, Nathan, Geldenhuys, Munnik, Pienaar and Rockey. Briefly stated, the findings of the Select Committee were that the Act presents various anomalies, that it has had in some respects results which were not anticipated, and that the Act requires amending. In view, however, of the number and intricacy of the proposals for amendment which have been submitted to it and which are deserving of serious consideration, the Committee is of opinion that it is not feasible to introduce a satisfactory amending Bill during the present session, but that the whole subject needs a more exhaustive investigation during the recess than has been possible in the limited time at the disposal of the Committee, with a view to preparing final amending legislation for consideration during the next session of Parliament. The Committee, therefore, recommends that a Commission be appointed (1) to consider carefully the evidence which has been placed before it and such other evidence as may be necessary, with a view to recommending amendments to the present Act; (2) to consider the steps taken for the prevention of the disease and any improvements thereto; (3) to inquire whether the system of insurance in regard to men employed in mines is desirable and practicable either in substitution for or in addition to the present provisions of the Miners' Phthisis Act; (4) to inquire as to the necessity of extending the provisions of the Miners' Phthisis Act to non-scheduled mines; (5) to draft the necessary legislation. While not covered by the terms of reference, the Committee has felt the necessity of having an inquiry into the question of industrial insurance and compensation for other industrial diseases. These conclusions are overwhelmingly supported by the weight of the evidence. In his statement on behalf of the Chamber of Mines, Mr. Gemmill said that no similar opportunity had been given the Chamber since the Select Committee of 1916; indeed the 1917 Committee definitely refused to allow the Chamber to give evidence before it. Mr. Gemmill went on to say that the gold mining industry took no part in politics, and was not represented in the House of Assembly—beyond such representation as the Government of the day might think fit to assume in respect of one of the country's most important industries. The employees, whose interests in matters of compensation naturally differ in many respects from those of the employers, have, of course, many representatives, and their side of the case is, therefore, continually before the House. The Chamber submitted, that, as a matter of course, an opportunity should always be given to it, and to other important industries, to give evidence on vital industrial matters coming before Select Committees; otherwise decisions might be arrived at without a full knowledge of the facts. In order to place before the Select Committee as complete information as possible in regard to Miners' Phthisis, the Chamber had awaiting the convenience of the Committee several witnesses—legal, medical and technical—who dealt with the Act in detail and pointed out the inequity of some of its most important provisions. Mr. Gemmill's statement only dealt with the Act in its broadest aspect as affecting the gold-mining industry. Space will not permit us to quote his statement in full, but his conclusions convincingly sum up the whole matter. "The Act," declared Mr. Gemmill, "has placed an enormously increased liability on the industry in respect of miners' phthisis, and that at a time when many mines are working at a loss and a serious crisis threatens the industry. The mines have not been allowed to reap the benefit due to their efforts in improving underground conditions—the burden being maintained by the imposition of increased rates of compensation. To-day, despite the fact that only about one-half of the gold-mining industry is making ends meet, it has to provide compensation at rates far in excess of the recognised standards of compensation for occupational disease—increasing six-fold the charge on the industry for miners' phthisis. The imposition of this excessive charge is accompanied by the abolition of the contribution previously paid by the men—the continuance of which might have made the rates of compensation less excessive: the companies are required to pay large retrospective awards—pensions, for instance, to widows and children of beneficiaries in respect of whose phthisis the responsibility is to a considerable extent that of companies and employees now defunct; the richer companies are compelled to assist in providing compensation consequent on the phthisical condition of poorer companies; and surviving companies are made to bear a large share of the liability of companies shutting down. To crown all, these provisions were agreed to by Parliament without any true idea of their enormous cost. Legislation of this description is to be expected from certain members in view of their avowed socialistic objective—the harassment and ultimate destruction of private industry. The Chamber trusts, however, that in view of the facts to be submitted in its evidence the Select Committee will decide to recommend a rectification of the Act on the lines suggested therein." And after hearing all the expert witnesses it is not to be wondered at that the Select Committee decided in favour of the case made out by the Chamber!

The July "Engineer & Electrical Review."

The July issue of *The South African Engineer and Electrical Review* is up to its usual high standard. The contents include Editorial Notes and News dealing with the Certificated Engineers' Annual Dinner; Magadi Soda; The Scheme of Professor Schwartz; Rand Water Board; Success of the New Issue; Fuel Economy Trials in Great Britain; The Union's Railway Mileage; The Smallest Wireless Receiver; Present-Day Responsibilities of Engineers; Iron Ore, Rustenberg; Paper Making in South Africa; Hydro-Electrics in Great Britain; S.A. Scientists meet at Bulawayo; the late John S. MacArthur; The Everlasting British Engine; Catalogues for British East Africa; British Locomotive Production; Demand for Railway Truckage. Larger articles deal with "The Use of Electricity in Developing South African Resources," a valuable short paper by Mr. B. Sankey on the industrial future of South Africa; "The Need for Chemical Research in South Africa," a brief account of the funds open to industrial research in this country; "Rand Water Board Activities," points from the annual report of the Rand Water Board, giving details of the year's work and reasons for adopting the five-million-gallons-a-day scheme; "The Progress of Siemens Bros. and Co.," a summary and abstract of the Chairman's speech at the last annual meeting of this important company; "S.A. Institution of Engineers Presidential Address," points from the important address by Mr. James Whitehouse at the annual meeting of this institution; "Engineers' Symphosium on Irrigation," views of Messrs. W. Ingham, F. E. Kanthack, and A. Stead on this all-important subject; "South Africa as a Market for Manufactured Iron and Steel," remarkable facts and figures dealing with this topical subject; "The Latest Developments of Vicker's Interests"; "The Use and Importance of Natalite," progress of the Natal motor spirit, new interests in East Africa and Australia; "Engineering Features of the Vaal River Scheme," points from Mr. W. Ingham's official report; "Machine Tool Trade Progress," several recent events in the British machine tool trade.

SIEMENS BROTHERS

& CO., LIMITED

MANUFACTURERS OF—

CABLES AND WIRES

For Electric Light and Power, Telephone, Telegraph and Signalling Purposes.

TELEGRAPHS AND TELEPHONES

Manual and Automatic.

ELECTRIC SIGNALLING APPARATUS

Luminous Engine Room Telegraphs to suit requirements.

EQUIPMENT FOR OVERHEAD TELEGRAPH, TELEPHONE AND POWER TRANSMISSION LINES

PRIMARY CELLS

Fluid and Dry.

EBONITE

&c. &c. &c.

SIEMENS BROTHERS & CO., Limited, Woolwich, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone: City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

DEEP LEVEL ALLUVIAL LEADS.

Prospects of Finding in the Transvaal—Buried Millions, Can they be Traced ?

By A. D.

In Australia and in America ancient river beds carrying alluvial gold have been found—in some cases cutting across the present river system, in other instances volcanic outbursts have filled up ancient valleys and turned rivers into entirely different courses and watersheds. We need not enlarge on this. All students of geology and mining know of these occurrences and of the enormous amounts of gold which have been won from these deep leads, often at a very small outlay of capital.

In the Transvaal, with the exception perhaps of Pilgrim's Rest, where it is believed more than £2,000,000 of gold was recovered in the early days before the discovery of the Rand, there has never been much energy put into alluvial work on anything but a small scale. No deep leads have ever been worked, and we have never even seen any writing suggesting their existence.

Of the surface alluvials much remains in the ground; even Pilgrim's Creek is, in the writer's opinion, still a very attractive proposition, but the concession granted by the late Z.A.R. Government has closed that area for the past thirty years or more to the only class of men who can handle and make a success of alluvial gold. There are other areas in the Pilgrims district, too, where good shows of alluvial can be seen over large areas; but this is a digression

For alluvial we have often set ourselves the problem: Is there no alluvial of the present or past age derived from the bankets of the Witwatersrand? Here we have more gold to the square mile than anywhere in the world, reefs outcropping for sixty miles or more. In past ages there has been enormous erosion from the upturned edges, yet no alluvial gold of any importance has ever been located. With the exception of a little shed gold near the outcrop of the reef we have noted no alluvial, so turned our thoughts back on past ages to see if there was no possibility of conditions such as produce big alluvial conditions in other countries.

To get conditions for the Rand such as obtain to-day in countries where alluvial is being deposited, we have to go back to the ice age of the Transvaal, to the period when dwyka was formed and to the period immediately preceding it. We will try to visualise the position. From dwyka times to the present there have been no great earth movements over this continent. The whole continent has been lowered, and it has been raised, but no great folding or movements have taken place as witness the horizontal condition of the coal measures and all newer strata than the dwyka over the continent. Locally there has been faulting and folding, but not to the extent of interfering with the general statement.

The country north of Johannesburg and Pretoria has been much higher than the Witwatersrand, as seen by the boulders of red granite and other rocks found in the dwyka, and ice, like water, cannot travel uphill, yet these have been brought by ice from beyond Pretoria to this district. The country to the south of the Witwatersrand must have been much lower, as to-day it falls 1,000 feet or more to Vereeniging, and dwyka is found to a depth of over 600 feet at that place.

In other words, our Witwatersrand was on a mountain side at that period. Now, in nature, except volcanic action, things are never done in a hurry, and before the ice age finally closed down on this area there would be a long period of torrential streams caused by melting snows. Heavy frosts would intervene, breaking up the rocks, and so on—conditions somewhat similar to part of Greenland and Spitzbergen to-day. Much gold and rock would be eroded away from the Witwatersrand and carried down in the pre-dwyka rivers, to be later covered up by ice drift.

Will it be possible to-day to trace the course of the dwyka period Witwatersrand river, and get the gold from it? That there will be much gold in it we have no doubt. All the lesser streams (pre-dwyka) have gold in them, as can be proved by panning. In the Elands River, near the Premier Diamond Mine, the writer has got both gold and platinum in a wash formed by the remnants of dwyka. In the Crocodile River, near Krugersdorp, it is also noted. In the Vaal River, near Barkly West, just below where a remnant of dwyka still exists in the bed of the Vaal, the presence of gold is noted by the diamond diggers, so that there was gold present in the pre-dwyka Vaal as far away from the Rand as Barkly West. This gold would probably come from Klerksdorp, as there is a ridge of older rocks stretching across the Vaal near Parys which would divide the ancient Wit river from the ancient Vaal. We have satisfied ourselves that many, if not all, of pre-dwyka streams round the country carried gold, and we have no doubt the main stream, if followed down until it reached quieter and smoother water in the valley at the foot of the range, will have deposited much of its gold.

The main line of the valley leaving the Witwatersrand is by Vereeniging or rather lower. At that place the dwyka has been proved to be 500 feet or more below the surface. The bar at Parys shows that the river held on south. Borings of coal measures near Wolvehoek have been proved to a depth of over 1,000 feet, and dwyka below that to an unknown depth. The New Rand has shown the other side of the valley, so right at the start the valley can be traced until it is some thousands of feet below the present level of the Witwatersrand. Will the mountain character of the river have been lost by that, and the water, slow running, to allow the gold to deposit, or will it need to be traced still further?

Near Clydesdale-Colebrook Colliery the base of the dwyka cannot be very much above our present sea level, so the quiet -running water stretch should almost have been reached on the other side of Heilbron.

The above is only an outline of the position. There is no doubt the gold will be there. The economic question is: Can it be traced with a fair chance of getting more out than the expense of finding and winning? In our own mind, we are satisfied that much more money has been spent in will-o'-the-wisp chases for speculative business than would be necessary in this. The coal measure rocks are soft and easily drilled. A few holes put down some miles south of Vereeniging would soon determine where the old river bed would likely be found. One might even have the luck to drop on some gravel wash. Some of the deep leads of Australia have been much hampered with water. There would be no such trouble here. The dwyka is all firmly cemented, and has never been shown to be a water-carrier wherever cut through. This question seems well worth the attention of our big houses and speculators.

The Lonely.

The following are particulares of gold, etc., from the Lonely Mine for the month of June, 1920:—Mill run, 688 hours; crushed, 4,820 tons; fine gold recovered, 1,938·280 ozs.; value, £8,154 0s. 1d.; slimes treated, 4,820 tons; fine gold recovered, 3,409·712 ozs.; value, £14,348 5s. 5d.; total fine gold, 5,347·992 ozs.; total value, £22,502 5s. 6d.; profit, £9,096 3s. 2d.

Rewards for Prospectors.

The South Australian government, to encourage prospecting for oil, has offered a bonus of £5,000 "to the person or body corporate which first obtains from a bore or well situated in South Australia 100,000 gallons of crude petroleum, containing not less than 90 per cent. of products obtainable by distillation." A bonus of £1 per ton on marketable graphite from a mine in South Australia, on the production, to the approval of the Minister of Mines, of account sales of graphite sold prior to June 30, 1922.

Measuring Instruments

for all requirements.

British made at the Salford Instrument Works of the **General Electric Co., Limited, England** Highest grade in quality, workmanship, finish, accuracy and reliability

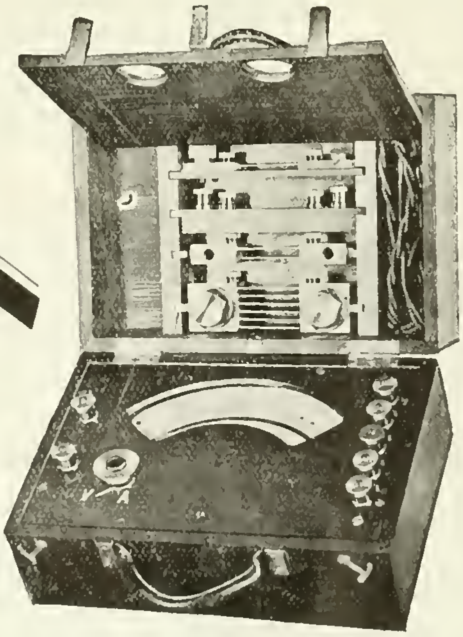
Competitive Prices. **Delivery from Stock.**

THE

BRITISH GENERAL ELECTRIC CO., LTD.,

P.O. Box 2406.
JOHANNESBURG
Telephones 4242 3.
Tel. Add.: "CURRENT."

BRANCH OFFICE: 83/89, CASTLE STREET, CAPETOWN.
And at Port Elizabeth, East London, Durban, Bulawayo, Etc.



THE COALFIELDS OF NATAL: A RETROSPECT.—I.

By JAMES CUMMING.

My first efforts on behalf of the Natal Coalfields were made in 1889 when I paid a visit to the few mines that were open and working, and wrote a series of notices of them on behalf of the *Natal Mercury*. That series was followed by another eight years later when the development of the coal mining industry was specially noticeable. In these far-away days coal, as a fuel, was little understood by the colonists. Everything that required heating either for cooking purposes or steam raising was done by burning wood. When Colonial coal was first introduced not only had the prejudice against the local article to be attacked and strenuously combated, but the house stoves most in vogue at that period, and which were imported from the famous makers, Smith and Wellstood, Bonnybrig, had to be altered to suit the new fuel. The innovation was bowed to with a bad grace. When the native coal was first tried for marine purposes the powers who were rose up in arms. They did not stop to think of the future interests of the country, or the benefit that would result to the shipping companies in cheaper transportation by the use of the Natal product. They thought only of themselves as shipping and landing agents. Their vested interests would be jeopardised. The opposition to the baby industry lay even with the marine engineers. They, in their turn, would not favour trials of the coal being made for many and various reasons. In the first place their perquisites would go by the board unless the prevailing system of "palm oil" could be maintained among the local agents, interested in the sales, for the mines. So great was this form of opposition that bribery had to be resorted to in many cases to get the engineers to allow even a limited number of tons of coal to go on board for trial, and the coal was even turned over *free of charge*. Many of these so-called trials were heartbreaking to those connected with the mines. They were not made seriously. Many results, as a matter of course under the circumstances, were given quite the opposite to what were honestly obtained. Fictitious reports against the coal were more in evidence than those in favour. Everything possible was attempted and tried through sheer ignorance and prejudice on the part of some people, and deliberate organised antagonism on the part of others against its introduction. Once in 1892 when I was on board a homeward bound steamer to try my luck to get the necessary capital to work a promising field of coal under the Biggersberg, I was one day walking on deck with the chief engineer. The funnel was emitting dense smoke. A regular smoke screen. Some of the black smut fell at our feet on the pummice scrubbed deck. The steamer was trying Natal coal for the first time. I was made aware of the fact by the engineer. He halted abruptly in his promenade, looked at the dirty deck with a gleam of contempt in his eye, drew one of his canvas shoes along the deck and thereby made a broad black smudge and raising his nose towards the smoke column he loudly sniffed and exclaimed in a derisive tone, "Ah! Fair Natal, I smell thee now." He distinctly referred to the sulphur in an unfavourable way as indicating a condemnatory reflection on the coal.

I can recall the coming out of the first expert report upon the Natal coalfields, together with a tabulated statement of results obtained from a series of trials of Colonial coal upon the Natal Government Railways by the late F. W. North. To the credit of the late Mr. North it must be said he did his work thoroughly. He called the attention of the Colonists to the fact by advertisement that he had been appointed by the Natal Government through the late Sir Henry Bulwer, who was the then Governor of the Colony, to visit those parts of the Colony reputed to contain coal, and asked information from owners or occupiers of land as to the position of any "outcrop" of coal. Several letters reached him which are of more than passing interest in the light of subsequent happenings to, and development of, Natal's coalfields. One of the first letters received by Mr. North was from our old geological friend, Mr. David Draper, who was residing in Newcastle. Mr. Draper once read a paper on the "Coal Occurrences of South Africa" before the South African Geological Society, but I have no knowledge that Mr. Draper's coal experiences extended beyond attempts to open up and work coal on a property south of Newcastle, and which farm was destined to become the cynosure of all eyes that had read the works of Rider Haggard as being the venue where once stood the cottage of one of his heroines. Mr. North's method of "doing" things stands out in strong contrast to that adopted by other specialists who have subsequently been engaged in the work of research in the open. Mr. North "roughed" it in tents; drove in bullock wagons and did not luxuriate in motor-cars or lustrate from other swift forms of travel with their accompanying cursory inspections, and necessarily hastily arrived at deductions of later-day highly-paid experts. Mr. North's report to-day is a classic. It is invaluable alike to

ROYAL SCHOOL OF MINES FRECHEVILLE RESEARCH FELLOWSHIPS.

The Imperial College of Science and Technology, South Kensington, London, S.W.7, with which the Royal School of Mines is incorporated, is offering two Research Fellowships of £300 a year each, tenable for one year, and possibly renewable for a second year, to aid in carrying out any investigation or research connected with Mining, Mining Geology, Metallurgy, or the Technology of Oil, which in the opinion of the Selection Committee is of sufficient use or promise.

Applicants who may be Associates of the Royal School of Mines or others, and preferably men with some practical experience, if resident in South Africa, should apply in writing to the Secretary of the Chemical, Metallurgical, and Mining Society of South Africa, Johannesburg (from whom further particulars may be obtained), before 1st September, 1920, giving the nature of the proposed investigation, qualifications for the work, and references.

It is anticipated that the Committee will make the awards by the end of November, so that the Fellowships and work may begin on 1st January, 1921. Holders will be expected to devote their whole time to the work which may be conducted at the Imperial College, or in special circumstances elsewhere, at the discretion of the Committee.

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

the prospector and the investor. Many a mine owes its very existence to the information provided by the late Mr. Fred North.

Among others who wrote Mr. North are the names of Mr. Robert Ralfe (who afterwards went to Bethlehem, in the Free State), and Major-General Lloyd, drawing his attention to outcrops of coal in the neighbourhood of Estcourt. These never came to anything. I paid Brynbella a visit years ago, immediately before the Anglo-Boer War, but the small outcrop I saw was of no commercial value. Subsequent borings, further south in the same neighbourhood, done by Mr. David Douglas, and the late Mr. James Piccioni, never revealed coal of any appreciable thickness. There was also Mr. De Barry, who wrote Mr. North and who was interested in Newcastle, and whose mantle ever since has been carried by Mr. Barrie, who has profitably worked coal in this district for three decades. The late Chief John Dunn (whom I knew personally) wrote from Zululand and drew the attention of Mr. North to coal outcrops near the Tugela close to the coast. From the correspondence that ensued the getting of the samples was entrusted to a native (a fatal habit even in vogue to-day) with the result that nothing eventuated. I purpose going to the spot indicated by the late Chief John Dunn and hope to locate and test that coal some day when time permits. I have tried hard to find workable coal on the coast and pegged off the Bluff, Durban, in 1901, beneath which a syndicate drilled to a depth of over 2,000 feet with the result—but, that is another story.

The late Sir Donald Currie was much interested in those far-away days in our coal deposits, as he was then and subsequently interested in everything that had to do with the progress and development of South Africa. Sir Donald drew Mr. North's attention to the fact that coal was outcropping at a certain spot not many miles south-east of Newcastle. He caused samples to be sent to Durban—not an easy matter in those days when the railway had not reached Pietermaritzburg. The samples were consigned to Mr. Andrews, Mr. Currie's Durban agent, whom I remember very well, and who was, if my memory serves me right, transferred to the Currie Office, Capetown. It was proposed to get out 30 tons in order to give the coal a reliable trial in one of the ocean vessels of the Castle Line, but had to be abandoned, because, owing to distance and slow mode of transport there was no time for the experiment to be made by Sir Donald Currie (then Mr. Donald Currie) during his stay in the Colony. The very spot indicated by Sir Donald Currie is destined to become one of the best fields of coal in Natal, and which so far has not received that attention which its thickness and quality certainly entitle it to. Mr. North says of the coal with prophetic instinct: "I do think it is worth a trial by boring some miles inland, and see if this seam is not thicker, or perhaps a thicker seam below it." The "better" and "thicker" was picked up many years after the date when Mr. North wrote these lines. I can picture a day, not far distant, when several companies will be working on this very field. The extension of the Natal Navigation Collieries' branch railway north from their No. 1 Pit to No. 5 Pit, has brought nearer this field of coal. It will be proved in time to be one of the thickest coal beds in Natal. As things are to-day it may be deemed a little inaccessible, but when railway material is not so high in price the question of construction will not be of such account and then this hitherto neglected coalfield will come within the scope of practical and profitable mining operations.

The late Mr. North's object was to investigate as accurately and conclusively as possible the probable area of workable coals, their thicknesses, commercial value and quality, whether for steam or gas, smithy or household consumption. The most essential point aimed at was the substitution of the imported article for local coal because of the pecuniary advantage to be gained by the Colony.

(To be continued.)

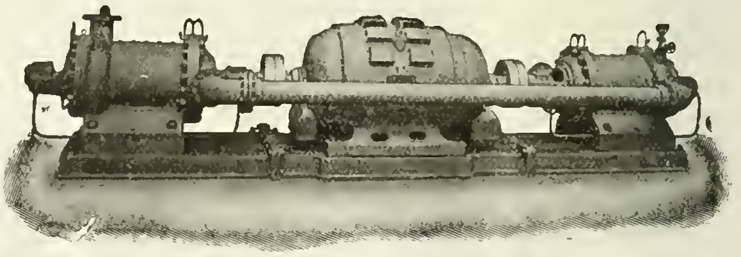
ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

PROGRESS WITH THE BARNATO GROUP.

Points From the Quarterly Reports.

It is intimated in the quarterly reports of the Barnato companies that the declared profits have been arrived at by adding together the published monthly figures. The value of the gold was taken as follows: April, £5 2s. 6d.; May, £5 5s.; June, £5 2s. 6d.; which averages about 1s. 2d. per fine ounce less than the previous quarter, and largely accounts for lower profits. The increase in the working costs is principally due to the increased rate of exchange, which in the beginning of March stood at 1½ per cent., rising to 7 per cent. in April, to 8½ per cent. in May, and reduced on June 11 to 7 per cent.

CONSOLIDATED LANGLAAGTE MINES.

Total profit for quarter, £27,366. The expenditure on capital account amounted to £4,562, and debenture interest to £1,031. The quantity of ore crushed was 11,200 tons more than that crushed in the previous three months. The working costs were 1s. 5d. per ton higher, and the working profit was £5,819 less than for the previous quarter. The development footage sampled totalled 2,180 feet, and gave the following results: Payable, 535 feet, having an average value of 28·3 dwts. over 15·8 inches of reef. Unpayable, 1,625 feet, having an average value of 7·3 dwts. over 10·3 inches. The average number of natives at work underground during the quarter was 2,899, as compared with 2,372 for the preceding quarter.

GOVERNMENT G.M. AREAS.

Total profit for quarter, £315,709. The expenditure on capital account amounetd to £11,572. The quantity of ore crushed during the quarter was increased by 34,500 tons as compared with the previous three months. The working costs at 24s. 1d. were 5d. per ton higher, and the working profit at £313,621 was £23,021 less than that for the preceding quarter. The development footage sampled totalled 5,060 feet, and gave the following results: Payable, 3,690 feet, having an average value of 16·2 dwts. over 53 inches of reef. Unpayable, 1,370 feet, having an average value of 3·4 dwts. over 48 inches. The average number of natives at work underground during the quarter was 6,375, as compared with 5,679 for the preceding quarter. The payable ore reserves at 10,988,020 tons show an increase of 38,220 tons for the quarter.

LANGLAAGTE ESTATE.

Total profit for quarter, £27,757. The expenditure on capital account amounted to £13,920. The quantity of ore crushed during the quarter was 20,000 tons more than during the previous three months, and the working costs at 27s. 6d. per ton were 1d. per ton lower than for the preceding quarter. The working profit at £27,249 shows an increase of £16,872. The development footage sampled totalled 1,702 feet, and gave the following results: Payable, 1,256 feet, having an average value of 25·1 dwts. over 16 inches of reef. Unpayable, 446 feet, having an average value of 8·0 dwts. over 9 inches. The average number of natives at work underground during the quarter was 2,966, as compared with 2,379 in the preceding quarter.

NEW PRIMROSE.

Total profit for quarter, £2,285. The quantity of ore crushed during the quarter was 7,600 tons more than that crushed in the previous quarter. The working costs showed a decrease of 2d. per ton, but the working profit was £1,804 less than for the preceding three months, owing to the price of gold being lower. The development footage sampled totalled 525 feet, and gave the following results: Payable, 492 feet, having an average value of 14·1 dwts. over 32 inches of reef. Unpayable, 33 feet, having an average value of 6·3 dwts. over 25 inches. The average number of natives at work underground during the quarter was 1,211, as compared with 1,096 in the preceding quarter.

NEW UNIFIED.

Total profit for quarter, £6,968. The quantity of ore crushed was 1,100 tons more than for the previous quarter, and the working costs were 1s. 1d. per ton higher. The working profit for the quarter was £6,811, which was £3,339 less than the working profit for the preceding three months. The development footage sampled totalled 40 feet, all of which was payable, having an average value of 67·5 dwts. over 4 inches of reef. The average number of natives at work underground during the quarter was 637, compared with 576 for the preceding quarter.

RANDFONTEIN CENTRAL.

Total loss for quarter, £55,135. The expenditure on capital account amounted to £75,726, and debenture interest to £31,734. The quantity of ore crushed during the quarter was 6,500 tons more than in the previous three months. The working costs at 27s. 9d. were 1d. per ton less than the previous quarter. Owing, however, to the accident in Block A shaft, the grade of ore milled was substantially lower. This, together with the lower price of gold, resulted in a working loss of £58,482 being made, as compared with a working profit of £36,200 for the preceding three months. Sinking at the north vertical shaft was re-started during the month of April. In the month of June the west reef was reached at a depth of 4,130 feet in the south vertical shaft. It had a dip of 55 degrees, and gave the satisfactory average of 12·5 dwts. over 48 inches. The Randfontein leader was missing, but there are occasional patches in this section of the mine where it disappears, so that this fact must not be looked upon as important. The development footage sampled totalled 5,830 feet, and gave the following results: Payable, 4,755 feet, having an average value of 21·2 dwts. over 20 inches of reef. Unpayable, 1,075 feet, having an average value of 10 dwts. over 19 inches. The average number of natives working underground during the quarter was 12,439, as compared with 12,517 for the preceding quarter.

VAN RYN DEEP.

Total profit for quarter, £190,271. The expenditure on capital account amounted to £2,759. Dividend No. 14 of 25 per cent. (5s. per share) has been dclared, payable to shareholders registered at June 30, 1920. The quantity of ore crushed was 8,500 tons less, and the working costs at 28s. per ton were 3s. 3d. higher than for the previous quarter. The working profit was £187,138, being £50,954 less than for the preceding three months. The development footage sampled totalled 1,076 feet, and gave the following results: Payable, 501 feet, having an average value of 24·3 dwts. over 24 inches of reef. Unpayable, 575 feet, having an average value of 5·2 dwts. over 17 inches. Development is now being pushed in the poorer section of the mine. The average number of natives at work underground during the quarter was 2,891, as compared with 2,868 for the preceding quarter.

WITWATERSRAND.

Total profit for quarter, £21,425. The expenditure on capital account amounted to £5,425. Dividend No. 32 of 5 per cent. (1s. per share) has been declared, payable to shareholders registered at June 30, 1920. The quantity of ore crushed for the quarter was 6,050 tons more, but the working costs were 1s. 11d. per ton higher than for the preceding three months. The working profit was £16,519, being £8,656 less than the previous quarter. The development footage sampled totalled 1,830 feet, and gave the following results: Payable, 930 feet, having an average value of 12·9 dwts. over 28 inches of reef. Unpayable, 900 feet, having an average value of 5·7 dwts. over 21 inches. The average number of natives working underground during the quarter was 2,093, as compared with 1,815 for the preceding quarter.

NEW STATE AREAS.

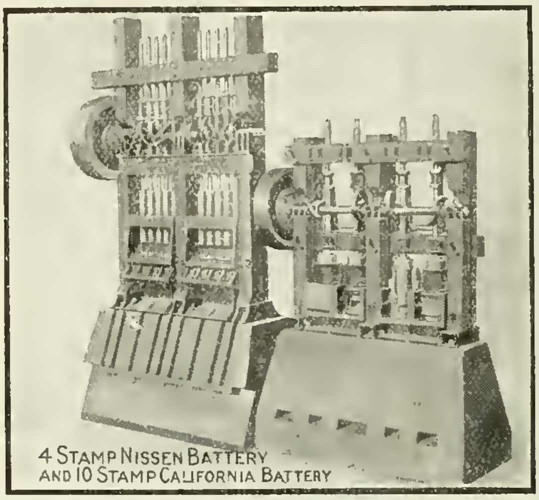
The expenditure on capital account amounted to £63,296, and was principally incurred in shaft sinking. The south shaft was sunk 750 feet during the quarter, and attained a total depth of 2,914 feet. The north shaft was sunk 720 feet during the quarter, and attained a total depth of 2,139 feet. The average number of natives at work underground during the quarter was 325, as compared with 316 for the preceding quarter.

HEAD, WRIGHTSON & CO. (South Africa), Ltd.

P.O. Box 1034. JOHANNESBURG. Telephone 3524.

SPECIALISTS IN

MINING MACHINERY, COAL HANDLING PLANT, STRUCTURAL STEELWORK, ETC.



4 STAMP NISSEN BATTERY AND 10 STAMP CALIFORNIA BATTERY

SOLE MAKERS OF THE

"NISSEN STAMPS."

Efficiency and Economy.

These Stamps are now installed in all the latest Mills in the Transvaal and Rhodesia.

THE

STRAITS TRADING COMPANY

LIMITED.

HEAD OFFICE **Singapore**
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—

THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF

TIN ORE CONCENTRATES OF ALL GRADES

FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—

THE STRAIT TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

LATEST FROM THE "C.M.S." SUBSIDIARIES.

Shaft Sinking Progress— Profits and the Gold Premium—Development Results.

THE reports of the companies belonging to the C.M.S. Group for the quarter ended June 30 contain the following information:

BRAKPAN MINES.

The linear development amounted to 3,997 feet, of which 2,835 feet were on reef averaging 9·03 dwts. over a reef width of 36·27 inches. Of the footage on reef, 1,375 feet, quivalent to 18·5 per cent., were in payable areas, and averaged 14·17 dwts. over 10.31 inches. The payable ore reserve as at June 30, 1920, was estimated at 2,182,098 tons, of an average assay value of 8·88 dwts. per ton over an average stoping width of 70 inches. This is a decrease of 2,019 tons as compared with the estimate at December 31, 1919, the average assay value being 0·14 dwts. per ton higher and the stoping width the same. The inch-dwts. figure is 622, as compared with 611. The pay limit has been raised from 4½ to 5 dwts., and this has had the effect of excluding 83,539 tons between the values of 4·5 and 4·9 dwts., which would otherwise have been included in the payable ore reserve. During the quarter a distance of 329 feet was sunk in No. 3 circular shaft, making the total depth of the shaft 3,039 feet, of which 3,006 feet are bricked or ringed. On passing through the dyke encountered in March, the Kimberley shales were struck, and sinking proceeded through these beds until the amygdaloidal diabase was met with. The shaft is at present in the diabase. During the quarter No. 4 circular shaft was sunk 358 feet, making the total depth 3,330 feet, of which 3,261 feet are bricked or ringed. During the quarter the amygdaloidal diabase was passed through and the shaft is at present in quartzite, having passed through the Bird Reefs immediately below the diabase. These reefs were sampled and gave unpayable results. The capital expenditure incurred during the quarter amounted to £33,737 1s. 7d. The estimated premium on gold recovered during the quarter was calculated as follows: April, 102s. 6d. per fine ounce, £15,087 2s. 8d.; May, 105s. per fine ounce, £19,566 11s. 10d.; June, 102s. 6d. per fine ounce, £17,199 9s. 4d.—total, £51,853 3s. 10d.; less reserve for exchange, £21,556 9s. 10d.—£30,296 14s. The company was assessed under the Miners' Phthisis Act, 1919, for the quarter ending July 31, 1920, at £5,775 19s. 11d. For the year ending July 31, 1920, the total assessment under the Act of 1919 amounted to £23,142 3s. 3d., as against a total payment by the company of £8,234 7s. 2d. for the previous year under the Acts then in force.

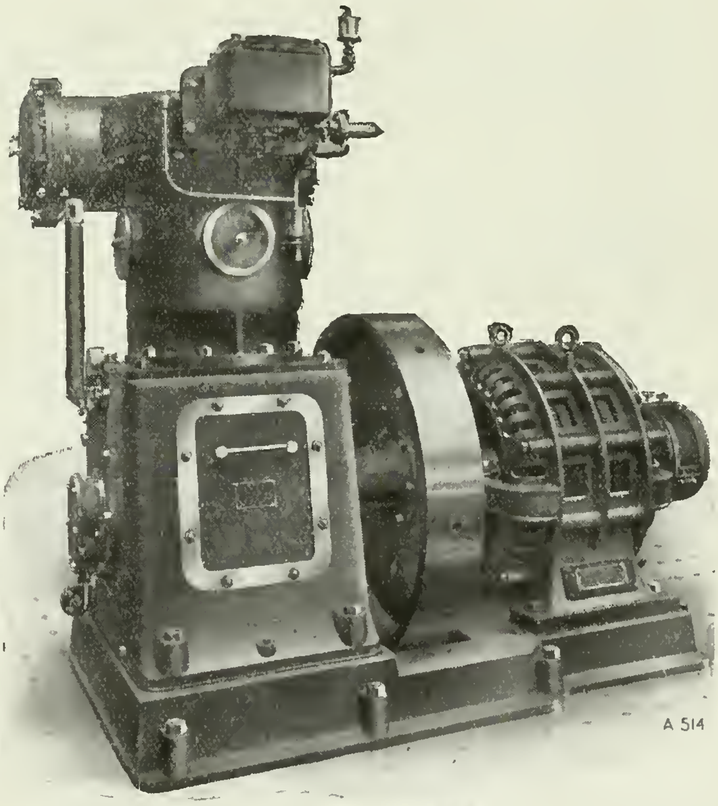
SPRINGS MINES.

The linear development amounted to 4,348 feet, of which 3,520 feet were on reef averaging 15·79 dwts. over a reef width of 22·77 inches. Of the footage on reef, 2,095 feet, equivalent to 59·52 per cent., were in payable areas, and averaged 22.85 dwts. over 23.98 inches. The valuation of the payable ore reserve as at June 30, 1920, is as follows: 2,569,207 tons of an average assay value of 8·75 dwts. over an average stoping width of 63·16 inches. This is an increase of 151,909 tons as compared with the previous estimate, the average assay value of the total being 0·01 dwt. per ton higher, and the stoping width 0·24 inches wider than estimated at December 31, 1919. The inch-dwt. figure is 553 as against 550. No. 3 shaft was sunk 509 feet during the quarter, making the total depth 3,649 feet, of which 3,607 feet are timbered. The reef on the contact was intersected at 3,166 feet, and gave unpayable results, namely, 0·3 dwt. over 61 inches. At the end of the quarter the south haulage from No. 2 shaft was 309 feet from No. 3 shaft. During the quarter sinking proper was commenced in No. 4 shaft, which has reached a depth of 48 feet, of which 30 feet are timbered. The expenditure on lease area capital account for the quarter amounted to £45,614 19s. 5d. Under the agreement in connection with the acquisition of the lease area, the Consolidated Mines Selection Company, Ltd., took up during the period under review 14,000 shares in the unissued capital of the company at £3 per share to provide further working capital. The issued capital is therefore £1,225,736. The estimated premium on gold recovered during the quarter was calculated as follows: April, 102s. 6d. per fine ounce, £15,795 1s. 5d.; May, 105s. per fine ounce, £17,793 19s.; June, 102s. 6d. per fine ounce, £14,197 11s. 2d.—total, £47,786 11s. 7d.; less reserve for exchange, £20,364 19s. 6d.—£27,421 12s. 1d. The company was assessed under the Miners' Phthisis Act, 1919, for the quarter ending July 31, 1920, at £4,061 10s. 8d. For the year ending July 31, 1920,

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368**.

TUTORIAL RESULTS:
46 Survey Certificates to date, including three Honours Certificates
Elsewhere One Survey Pass has been obtained to date.
Last two Managers' Examinations combined we secured 15 passes from 19 entries, a truly remarkable record.
We established a percentage record of passes, January, 1920, Managers' Examination.
We lead with Overseers Passes, 1918 and 1919, combined.
WRITE FOR PARTICULARS AND CLASS TIME TABLE.



"SENTINEL" AIR COMPRESSORS

Large Stocks carried in South Africa, ready for immediate delivery,
Steam Driven or Belt Drives.

SOLE AGENTS:
THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

the total assessment under the Act of 1919 amounted to £15,724 3s. 7d., as against a total payment by the company of £6,329 4s. 6d. for the previous year under the Acts then in force.

WEST SPRINGS.

No. 1 shaft was sunk 698 feet, making the total depth at the end of the quarter 2,320 ft., of which 2,296 ft. are timbered. During the quarter the shaft passed through the quartzite and reefs of the Kimberley series, but no payable values were obtained. The shaft is at present in the Kimberley shales. The No. 2 shaft was sunk 462 feet during the quarter, making the total depth 1,491 feet, of which 1,469 feet are timbered. Sinking is proceeding in quartzite. Three reefs were intersected during the quarter, all of which were unpayable. Details of the quarter's development, together with a summary of the work so far accomplished by Springs Mines, Ltd., in this company's property under the working agreement, are as detailed below:—East haulage, west face: Footage on reef, 187; footage sampled, 190; reef width, 28·87 inches; assay value, 2·24 dwts. For quarter: Footage on reef, 187; footage sampled, 190; reef width, 28·87 inches; assay value, 2·24 dwts. Previously reported: Footage on reef, 1,199; footage sampled, 1,185; reef width, 20.22 inches; assay value, 9.01 dwts. Totals and averages: Footage on reef, 1,386; footage sampled, 1,375; reef width, 21.41 inches; assay value, 7.75 dwts. During the period under review payments of 18s. per share were made in respect of 108 shares 2s. paid up, and these shares were issued as fully paid up. At June 30 the capital of the company was as follows: 446,615 shares fully paid up, 953,385 shares 2s. per share paid up.

DAGGAFONTEIN MINES.

Of the footage sampled during the quarter 23·5 per cent. showed payable assays and averaged 44.42 dwts. over 7.20 inches. A similar analysis of the total development to date showed 43·5 per cent. of payable assays, averaging 30·14 dwts. over 15·04 inches. No. 1 shaft: The main incline (west haulage), after being driven 535 feet in dyke, entered into the footwall shales in the middle of June. No. 3 south haulage, after being in quartzite at the beginning of the quarter, passed through 87 feet of dyke and emerged therefrom into the footwall shales. The face was advanced 220 feet to get clear of the disturbing influence of the dyke, and a borehole is now being drilled upwards to locate the reef. No. 4 south drive has been on reef the whole of the quarter. Of 535 feet sampled, 80 feet, or 15 per cent., gave payable assays at 33.4 dwts. over 8.2 inches. No. 4 south-west haulage was driven on reef, and of 210 feet sampled, 95 feet, or 45 per cent., gave payable assays of 56·4 dwts. over 6·4 inches. No. 2 shaft was sunk 465 feet, making the depth at the end of the quarter 3,781 feet, of which 3,760 feet are timbered. The amygdaloidal diabase was passed through at 3,412 feet, and sinking has since proceeded in quartzite. It is anticipated that the reef will be struck during the current month. It was decided during June to restrict operations at No. 1 shaft, with the result that all development work was stopped excepting the main incline, which is being pushed on to obtain a connection with No. 2 shaft and the borehole to prove the reef in No. 3 south haulage. The Rand Water Board purchased 25,994,000 gallons of water during the quarter. At the annual general meeting, held on May 27 last, the chairman stated that the loan of £250,000 provided under the guarantee of the Consolidated Mines Selection Company, Ltd., was nearly all expended, and that negotiations were proceeding for the provision of additional funds. The £250,000 loan was exhausted in June, and arrangements were made with the Consolidated Mines Selection Company, Ltd., for a further loan of £50,000 in order that the No. 2 shaft may be sunk to the reef, and that work may be continued in the main incline. Negotiations are now in progress for the provision of further funds, and the directors hope that their efforts in this direction will be successful.

SPECIAL MACHINERY,
TOOLS, APPLIANCES
and EQUIPMENT
MANUFACTURED TO CUSTOMERS' REQUIREMENTS.

Accuracy and quick delivery guaranteed.

Enfield Machine & Auto Tool Co., Ltd.,
ENFIELD, MIDDLESEX, ENGLAND.

QUALITY
SAWS
—NOT ORDINARY QUALITY BUT THAT BETTER QUALITY AS MANUFACTURED BY
Sanderson Bros. & Newbould
— LIMITED —
OF SHEFFIELD.

HANDSAWS, BACKSAWS, ONE AND TWO-MAN CROSSCUT SAWS, METAL SLITTING SAWS, BANDSAWS, CIRCULAR SAWS FOR WOOD AND FOR METAL, ETC.

They will saw more—do it better—and do it quicker. That means big savings of time, labour, and on ultimate costs. —— May we tell you more about these quality saws? ——

Sole S.A. Agents for SANDERSON BROS. & NEWBOULD, LTD.
BARTLE & CO., LTD.
LOVEDAY HOUSE, —— JOHANNESBURG.
BOX 2466
PHONE 3553

M.J. 2.

MODDERFONTEIN EAST: LATEST DEVELOPMENT RESULTS.

The reef exposures in the Modderfontein East during the quarter ended June 30 were as follows:

Shaft.	Total footage.	Footage on reef.	Payable footage.
No. 1 Shaft	2,624	1,575	835
No. 2 Shaft	1,130	920	180
No. 3 Shaft	1,304	950	585
Totals and averages	5,058	3,445	1,600

	Percentage payable.	Average width. Inches.	Average value. Dwts.	Inch dwts.
No. 1 Shaft	53·0	35	25·9	897
No. 2 Shaft	19·6	32	14·4	456
No. 3 Shaft	61·5	32	9·6	309
Totals and averages	46·4	33	18·9	632

The results to date are:

Shaft.	Total footage.	Footage on reef.	Payable footage.
No. 1 Shaft	36,878	21,819	11,122
No. 2 Shaft	4,347	3,440	1,835
No. 3 Shaft	7,174	5,320	3,660
Totals and averages	48,399	30,579	16,617

	Percentage payable.	Average width. Inches.	Average value. Dwts.	Inch dwts.
No. 1 Shaft	51·0	23	21·3	491
No. 2 Shaft	53·3	27	16·1	427
No. 3 Shaft	68·8	27	13·7	368
Totals and averages ...	54·3	24	18·8	457

The above figures do not include vertical shaft sinking in Nos. 2 and 3 shafts or the driving done by the Modderfontein B Company.

The amount of development done was considerably less than in the preceding quarter, due to the fact that portion of the labour force and compressed air supply had to be diverted to preliminary stoping arrangements. The underground connection between No. 1 and No. 2 shafts was completed early in May, rendering numerous points of attack available for future development.

The re-estimated ore reserve at June 30, 1920, amounted to 1,755,400 tons of an average value of 7·75 dwts. per ton over 55·3 inches.

During the last days of April a commencement was made to transport ore to the Apex reduction plant, the Modderfontein East Company delivering it to Geduld siding for transfer by the South African Railways to Kleinfontein Station, and thence over the Kleinfontein administration's branch lines to the Apex reduction plant. The arrangement has worked smoothly, and up to June 30 a total of 52,924 tons were transported, whilst 39,500 tons were milled. Of the total tonnage handled, 31 per cent. consisted of ore from stopes, the balance being low-grade material derived from development faces and surface dumps. There has naturally been a considerable absorption of gold in the plant, which, however, will gradually decrease.

Since the close of the quarter operations have proceeded on an improved scale, the tonnages obtained from stopes showing a steady increase, with a corresponding improvement in the value of the ore milled. The expenditure for the quarter on capital account totalled £147,820 17s. 1d. The number of shares taken up at 21s. 3d. per share under the three-year option, which expired on July 1, 1920, was 251,855.

PERSONAL.

Mr. G. W. Westgarth, of Messrs. Craven & Speeding Bros., wire rope manufacturers, Sunderland, has arrived in Johannesburg.

Mr. Westgarth is the inventor of Westgarth's Patent Core Wire-Ropes, for which The Clyde Trading Co., Ltd., Howard Buildings, Main Street, Johannesburg, are the sole agents in the Transvaal and Natal.

* * * *

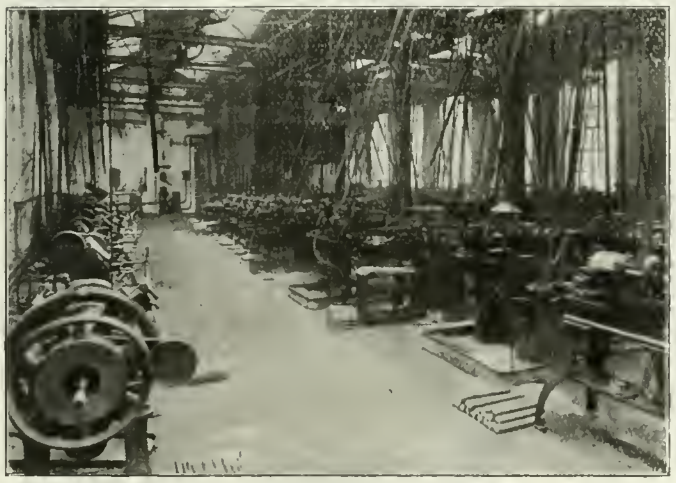
The certificates issued by the Mines Department for the period ended 31st July, 1920, were as follows:—Mine overseers (metal mines): F. J. Hosking, R. Wakeford. Electrical engineer (mines): C. J. Lavers.

Natal Ammonium, Ltd.

The accounts of Natal Ammonium, Ltd., for the year ended September 30, 1919, show a profit of £1,693; after deducting this profit from the loss brought forward, a debit balance of £2,591 remains to be carried forward.

Natal Navigation Collieries & Estate, Ltd.

The Natal Navigation Collieries & Estate, Ltd., have declared a dividend of 3¾ per cent., plus a bonus of 1¾ per cent., making 5 per cent. (or 1s. per share) in respect of the half-year ended June 30.



PHONE 4673. BOX 3162

OSBORN'S
PATENT
"Daly" Tappets and
W. & S. Tube Mill Liner.
WRITE FOR DESCRIPTIVE BOOKLET.

Samuel Osborn (South Africa.), Ltd.,
SHEFFIELD AND JOHANNESBURG.

Pretoria Portland Cement.

An extraordinary general meeting of the Pretoria Portland Cement Company, Ltd., was held at Pretoria last week. Mr. J. R. Leisk presided, and said the circular which had been issued to shareholders on May 21 had summarised the reasons which had induced the directors to think that the time had arrived for capitalising certain items in the accounts. While the company's business was developing, it was the policy of the board, in accordance with customary practice in such matters, to devote to capital services a considerable portion of realised profits rather than to raise fresh capital for these purposes. That was a cautious and prudent policy, but as would readily be appreciated, it was liable, if applied indefinitely to an enterprise like theirs, to give through their published accounts an exaggerated impression of their precise position and profit-earning capacity. In other words, their present capital of £300,000 was far from representing the company's actual expenditure upon plant, equipment, construction work, etc., and accordingly the trading profits were shown on a higher basis than would be the case if the accounts more nearly reflected the true position. Naturally that occasioned some embarrassment which it was desired to remove, and accordingly the directors recommended that the two items specified in the circular of May 21, amounting together to £270,000, be capitalised—involving an increase from £360,000 to £630,000 in the capital of the company. The two items were: (*a*) £180,000 representing the premium realised on the recent issue of 60,000 £1 shares at £4 each; and (*b*) £90,000, the working capital accumulated out of profits. If the increase of capital were approved, the directors recommended that the 270,000 additional shares be distributed among shareholders registered on July 31 in the proportion of three new shares for four existing shares. He moved: "That the capital of the company be increased to 630,000 by the creation of 270,000 additional shares of £1 each ranking for dividend, and in all other respects *pari passu* with the existing shares of the company." The motion was agreed to unanimously.

STURROCK & CO.

GENERAL, MINING AND RAILWAY
ENGINEERS AND CONTRACTORS

beg to announce that
in future this business
will be carried on
under the title:—

STURROCK
(SOUTH AFRICA) LTD.

to whom all communications should be sent.

OFFICES:—

Barsdorf's Buildings,
MARSHALL STREET,
JOHANNESBURG.

P.O. Box 2863. Telegrams: "Delta." 'Phones 2596.

ANNOUNCING THE OPENING OF

BARIMAR
IN
SOUTH AFRICA

Following the policy of putting Barimar Branch Factories around the world, the Directors have pleasure in announcing the opening of the third Barimar Factory out of England—

BARIMAR (SOUTH AFRICA) LTD.,
Head Office - BARSDORF'S BUILDINGS, JOHANNESBURG.

Barimar (South Africa), Ltd., is completely equipped with the latest appliances for welding all metals, and with the most efficient machinery for completing repairs.

Highly skilled welders, trained in Barimar London Factories, control the technical side of Scientific Welding in the South African Factory, and these men will be able to produce the same grade of work that has made Barimar Scientific Welding famous throughout the Motor and Engineering Trades.

To SEND REPAIRS TO BARIMAR. We must see the parts before we can estimate or advise upon repair. Send them to us. First remove all fittings, then attach a label bearing your name and address. Please pay carriage. Post a letter to us advising despatch and give full instructions.

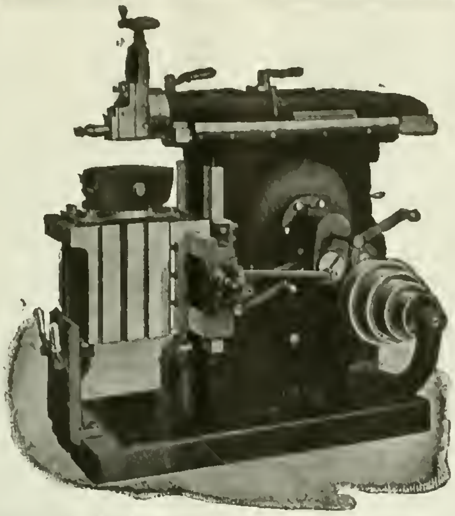
BARIMAR (S.A.) LTD.,
Ferreira Industrial Sites,
SAUER STREET SOUTH, JOHANNESBURG.
Telegrams "Barimar." 'Phone 2596. Box 2863.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK (S.A.) LTD.,
BARSDORF'S BLDGS.,

Telegrams: "BRITFLOT." Phones 2596-7.



STEPTOE SHAPERS AND MILLERS

Seventy-five years of experience in the manufacture of high grade machine tools with thousands of our machines in shops all over the world giving daily satisfaction are recommendations that you should not overlook in the selection of your equipment.

Send for a copy of our catalogue showing our entire line of Shapers and Millers, also complete specifications, prices, etc.

Steptoe Shapers can be supplied with cone drive, single pulley drive or motor drive. Each machine before leaving the factory is thoroughly tested by corps of inspectors.

SOLE SOUTH AFRICAN AGENTS FOR
The John Steptoe Co., Cincinnati, Ohio, U.S.A.

BARTLE & COMPANY, LTD.,
P.O. BOX 2466. PHONE 3553. WIRES "FAGGOT"
LOVEDAY HOUSE —— JOHANNESBURG.

THE GEOLOGICAL SURVEY: ANNUAL REPORT OF THE DIRECTOR.

The report of the Director of the Geological Survey (Dr. Rogers) for 1919 is as follows:—

Geological mapping was carried out during 1919 in the Heidelberg District, in Zululand, and in the bushveld. The area covered was small, for Heidelberg is being surveyed in considerable detail, four months only were given to the Zululand work by Dr. Du Toit, and Dr. Wagner mapped small areas concerning which it was important to get information bearing on his investigations into the mineral deposits in their neighbourhood; almost the whole time of Mr. Hall and Mr. Wybergh was taken up in the examination and description of special mineral deposits. Early in the year replies to the advertisements for geologists were received, but, as there was no suitable applicant, no appointment was made. After the transfer of Dr. Du Toit to the Department of Irrigation in May, therefore, the numerical strength of the staff of the Survey was weaker than it had ever been. It was thought advisable to let some months elapse before further attempts were made to fill the vacancies on the staff, and fresh advertisements were published at the end of the year. It is hoped that four of the applicants will soon be appointed, and that rapid progress will be made in the survey of the large areas within the Union concerning which geological information is scanty or wanting.

Summary of the Work.

The Director continued the survey of Heidelberg, where 360 miles of geological boundary lines were laid down, completing 610 in the district. The detailed work is proving the existence of many faults in the Witwatersrand beds, both dip faults, which have had considerable effect in displacing the outcrop of the Nigel as well as other horizons, and strike faults which decrease or increase the apparent thickness of groups of strata in different parts of the district. The effect of many of these faults is confined to limited thicknesses of beds, and their delineation is essential for the understanding of the structure of the area. On account of a general expectation that the district will be found to contain workable gold-bearing conglomerates in spite of the disappointments hitherto experienced, it is important that the geological map as printed shall indicate within narrow limits the stratigraphical horizon to which every group of outcrops belongs. The intrusive igneous rocks are varied, and they are being mapped in detail, so that their relations to the faults can be determined as far as possible; some kinds are older than all the faults, but others appear to have invaded the area during or shortly after the minor faulting, but before the great Sugarbush fault was completed; while yet another group, which includes such unusual rocks as grorudite and riebeckite—anorthoclase—quartz rocks (commendite) is almost certainly younger than that fault, but older than the Karroo beds. The dolerites which form large sheets in the Karroo beds within the area and in the high veld to the east are met with in small bodies only in the Witwatersrand and other pre-Karroo formations. The details of the history of the intrusions have a bearing on the various speculations concerning the origin of the gold in the conglomerates, and it would seem that the abundance of the intrusions in the Witwatersrand beds in the Heidelberg District, which cannot be considered as equal to the Witwatersrand itself in the value of the gold-bearing conglomerates, tends to show that their effect has been secondary in connection with the redistribution of gold brought into the conglomerates by other agencies than igneous activity.

The Director made a traverse with the Inspector of Mines, Pretoria, from Heidelberg to the Swaziland border, southwards to the Natal main line of railway, and thence back to Heidelberg, in order to obtain a general notion of the Karroo beds of the south-eastern Transvaal. He also visited the Olifants River tinfields when Dr. Wagner was working there. In October he went to Matjesfontein in the Cape Province to report on the lately discovered phosphatic rocks in the Dwyka series. Mr. A. L. Hall, Assistant Director, was engaged throughout the year, with the exception of a few weeks spent on museum work on investigations of the mica, corundum, nitrate, and iron deposits. His examination of the long-known nitrate deposits of Griqualand West and Prieska was made jointly with Mr. Frood, Inspector of Mines for the Cape Province, and their reports were published as Geological Survey Memoir No. 14. The reports had a restraining effect upon the wildly exaggerated expectations of nitrate production from that region, and their cautious conclusions concerning the probable yield have been fully justified by the results of the attempts to work the deposits. Mr. Hall devoted much time to the mica and

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%.

Overseers.—25 Certificates out of a total of 37 in South Africa in 1920. Our passes during a recent 6 months (1919/20) were 95%.

Surveyors—Our new class obtained the only Certificate in South Africa, March, 1920 Examination. Over 60 successful candidates have received sectional or other tuition from us,

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

corundum deposits, and the description of the former has appeared since the end of the year as Geological Survey Memoir No. 13. His work on the iron deposits of Buffelshoek, in Rustenburg, was done in conjunction with Mr. Jourdan, Assistant Inspector of Mines, Pretoria, and their joint report was printed in the *South African Journal of Industries* for December. Mr. Hall also completed the "explanation" of Sheet No. 16 (Belfast) of the Geological Map of the Transvaal, which was issued during the year. Dr. Du Toit left the Survey to join the Irrigation Department on 1st May, after having worked for the Department during the previous four months. Between June and November, however, he returned to the work commenced by him in Zululand, and he completed the Krantzkop-Melmoth sheet (109). He had to make a topographical map of much rough country. The area is made of flat-lying beds of Cape and Karroo age resting on much older rocks, which offered many difficulties not yet fully solved. The oldest rocks are hornblende schists, serpentines, granulites, and gneisses invaded by granites and gneiss; these beds stretch down the Tugela Valley from Ngubevu and eastwards south of Melmoth. The hornblende schists pass northwards into chlorite-schists and limestones, and they abut against granite and the Insuzi beds along an important east-west thrust fault. Much younger beds than the schists are involved in the thrust, and the schists have been pushed north, so as to overlie these younger beds. The Insuzi beds, chiefly quartzites, grits, conglomerates, and volcanic rocks, are perhaps the equivalents of the Lower Pongola beds of Vryheid, and at Nondweni and Umzinga they lie uncomformably upon the Nondweni schists, which have furnished pebbles to the Insuzi conglomerates. Both the Nondweni and Insuzi beds have been invaded by granite and various basic rocks. Faults of Post-Karroo age, generally with east-north-east trend, divide the area into blocks, and they become more important towards the east. One of these faults is responsible for the preservation of the Karroo beds of the Umlalazi coalfield.

Of actual or possible economic interest in the area are the gold-bearing veins in the older schists of the Lower Insuzi Valley, the Mpapala Flats, and west of Melmoth; the iron ores of Isibudeni and Mambula; the copper-bearing syenites of Umhlatuzi and the Buffalo Valley; the Chrysotile asbestos near Fort Yolland, Middle Drift, and Tugela Rand; the tremolite asbestos of Umsinga; the corundum near Krantzkop; and the gypsum of Ngubevu. Dr. Wagner reported, with Mr. T. G. Trevor, Inspector of Mines, Pretoria, on the marble deposits of Marble Hall and Scherp Arabie; their report was printed in the *Journal of Industries* for July. He spent two months on an investigation of the raw materials suitable for glass-making in the Union; the results appeared in the *Journal of Industries* for May and June. During the greater part of the year his time was taken up by an examination of the tinfields of Zaaiplaats-Groenfontein, Mutue Fides, and Stavoren, and laboratory work on the rocks got there. He also examined the iron ores of Pretoria and Buffelshoek, and inquired into the resources of coking coals and manganese of the central Transvaal, finding that they will suffice for the local iron and steel industry for an indefinite period. In the course of an investigation into the saltpan north of Pretoria and its contained salts, he was able to prove its suspected volcanic origin. Mr. Wybergh was engaged during ten months on his report on the limestones of the Union; the second part of the report on the subject is now in the printer's hands. He commenced a general review of the coal resources of the Transvaal.

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

CORRESPONDENCE AND DISCUSSION

RANDFONTEIN CENTRAL G.M. CO.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—We beg to advise you of the dispatch to-day of the following cable to our London office: "Randfontein Central G.M. Co., Ltd.: Robinson shaft collapsed 29th July. Cannot be repaired. Will affect tonnage, but hope to make small profit."—Yours, etc.,

ALEX. LEAL, for Secretaries.

Johannesburg, July 30.

THE IMPROVED OUTLOOK AND THE LOW GRADE MINES.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—With the disappearance of the 6s. 7d. per oz. on gold realisation charges, with the increased and increasing gold premium, with a retrenched and reorganised labour supply, with a six-hour shift in being or on tapis and with declining ocean freights and a consequent lowering of prices of mining supplies, surely the directorate of some of the mines now cleaning up or on point of closing down will come forward with the glad announcement that owing to above and other factors, they will be enabled to continue operations and incidentally prove the sincerity of the regrets they manifested when their closing-down policy was announced. Is the hope justified?—Yours, etc.,

A. YOUNG.

Allen (Edgar) & Co., Ltd.

The directors of Allen (Edgar) & Co., Ltd., have formulated a scheme under which employees of the firm will be offered an opportunity of taking a financial interest in the business. It is proposed that 20,000 £1 ordinary shares should be offered to the employees at a premium of 10s. each if taken up at once—a distinct advantage, seeing the shares are quoted at 36s. 6d. To carry out this scheme, the directors are asking the shareholders to sanction an increase of the capital to £800,000 by the creation of 100,000 new ordinaries, the balance of 80,000 shares to be issued by the directors as they may consider expedient. The net profit for the past year, after making provision for contingencies, amounts to £81,958, which with £44,210 brought forward, makes £126,168. The directors propose to place £20,000 to reserve, making that fund £69,000, and to pay a final dividend of 2s. per share, tax free, making 3s. per share, carrying £47,568 forward It is proposed to pay preference dividend, tax free

THE WEEK IN THE SHAREMARKET.

Improvement on London Buying—Silvers Higher—Increased Activity.

The Sunday strike on the Rand did not seem to have much effect on the market either here or in London, and the week has witnessed an increase of activity. London turned buyer after the August Bank Holiday, and the whole list benefited. The improved price of gold and the distribution of the June dividends doubtless had much to do with the better feeling, and the improvement was reflected in the quotations for diamond and silver shares. Frank Smiths were firm at about 17s. and Transvaal Silvers were nearly back at their highest figure. On Thursday afternoon prices were a little easier, but the dullness may be but temporary, awaiting a lead from London. The July output declarations are expected to be encouraging.

	Fri. 30th.	Tues. 3rd.	Wed. 4th.	Thurs. 5th.
Anglo-American Corporation	31 6	30 9*	32 0	32 0†
Bantjes Consolidated	3 0*	—	3 3*	3 0*
Blaauwbosch Diamonds	80 0†	—	—	80 0†
Brakpan Mines	50 0*	48 9*	49 0*	53 0†
Brick and Potteries		—	—	6 0*
Bushveld Tins	1 0	—	—	0 10*
Cinderella Cons.	4 6†	2 6*	4 6†	3 0*
City and Suburbans	7 6†	7 0*	6 9*	7 0
City Deeps	50 6*	51 0*	51 3*	51 3*
Con. Diamonds	—	35 0†	—	35 0†
Clydesdale Collieries	24 0*	24 0*	—	—
Consolidated Investments	—	25 0*	—	—
Consolidated Langlaagtes	17 0†	—	—	—
Consolidated Main Reefs	12 9*	13 0	13 0*	13 1*
Coronation Freeholds	1 2	1 2*	1 4	1 3*
Coronation Syndicates	—	—	—	8 0*
Crown Diamonds	6 6*	6 9*	6 9*	6 3*
Crown Mines	55 0†	47 6*	—	52 6†
Daggafontein Mines	9 3	11 0	13 0	12 3
Do. Options (5 years)	1 3*	1 3*	3 3*	2 0*
East Rand Coals	2 4*	—	2 5*	2 5
East Rand Deeps	—	—	0 9*	—
East Rand Minings	12 0*	—	—	—
East Rand Proprietary	—	7 7	8 3	8 0*
East Rand Debentures	—	£66*	—	—
Eastern Golds	—	—	0 11*	—
Frank Smith Diamonds	15 9	16 4½	17 3	17 3
Geduld Proprietary	39 6	40 6*	—	39 3
Ginsbergs	—	—	1 0*	—
Government Areas	85 6	85 0*	85 6*	86 0†
Glencairns	1 0*	1 3*	—	—
Hume Pipes	—	—	22 0*	22 0*
Johannesburg Board of Executors	—	—	—	39 6*
Jupiters	2 0*	2 0*	2 0*	2 0*
Klerksdorp Proprietary	—	2 0*	—	2 0*
Knight Centrals	4 9	4 6*	4 8	4 8*
Knights Deeps	—	4 6*	4 6*	4 6*
Kaalfonteins	0 5†	0 5†	—	0 5†
Lace Proprietary	10 0*	11 0	10 6*	10 6*
Leeuwpoort Tins	20 0*	20 3*	20 6	20 6†
Lydenburg Farms	7 0*	7 0*	7 0*	7 0*
Middelvlei Estates	1 6*	—	1 6*	—
Modder B.'s	132 6	130 0*	135 0*	136 3†
Modder Deeps	42 9	42 0*	43 0*	42 9
Modder Easts	22 6*	22 9*	23 1½	23 0
Do. Options (4 years)	7 0	7 0	7 1	6 10*
Modder Wests	15 0*	15 0*	15 0*	15 9
New States	27 0*	27 0	27 3*	27 3b
Natal Navigation Collieries	25 0*	—	—	—
National Banks	265 0†	265 0†	265 0†	270 0†
New Eland Diamonds	—	62 6†	—	62 6†
New Era Consolidated	8 6*	8 6*	—	9 0†
New Geduld Deeps	—	—	1 7*	—
New Heriots	5 6*	6 0*	6 0*	—
New Kleinfonteins	7 10	—	7 4*	8 0†
New Modderfonteins	68 6*	69 0	70 3	69 3
Nigels	—	—	—	6 0*
Nourse Mines	8 6*	8 0*	8 6*	8 0*
Princess Estates	0 7*	0 7*	0 7*	0 7*
Rand Mines	54 0†	—	54 0*	55 0†
Rand Nucleus	—	1 2*	1 2*	1 1*
Randfontein Deeps	5 9*	6 3†	—	5 9
Randfontein Estates	18 0*	18 6	18 6*	18 6*
Roberts Victors	13 3	14 0†	—	12 6*
Rooibergs	7 0*	7 0*	7 0*	7 0*
Roodepoort Uniteds	0 6*	0 6*	0 6*	0 6*
Ryan Nigels	3 3*	—	—	—
Rouxville Diamonds	26 0	25 9	25 6	24 9*
South Van Ryns	8 0	—	7 9*	8 3
South African Townships	12 0*	12 0*	12 0	11 9*
South African Alkali	27 3	26 6*	—	27 0*
Shebas			1 9*	—
Simmer Deeps	—	0 6†	0 6†	—
S.A. Breweries	29 0	28 0*	28 0*	30 0†
South African Lands	4 9*	4 11	4 6*	4 11
Springs Mines	38 3	39 6	41 0	40 6b
Sub Nigels	16 3	16 9	17 0	16 9
Transvaal G.M. Estates	12 3*	13 0†	12 0*	12 0*
Transvaal Silver	47 6a	45 6	48 0*	51 3
Do. Options	25 3	25 3a	26 0	30 0
Tudors	—	0 9†	0 9†	—
Union 5 per cent.	£99¼*	£99¼*	£100*	£100†
Van Ryn Deeps	80 0*	79 0	79 0*	79 0
Van Dyks	1 3*	1 6*	1 6*	1 6*
Village Deeps	9 9	10 3†	9 9*	10 0*
Victory Diamonds	1 3	1 4†	1 3	1 1*
West Springs	17 3	17 0	17 3	16 6*
Do. Options	3 0*	3 0*	3 4½	3 0*
West Rand Consolidated	—	—	—	5 0†
Western Rand Estates	4 3*	4 3*	4 3*	4 3*
Witbank Collieries	48 0b		48 0*	48 0*
Witwatersrand Deeps	8 0*	—	—	8 3*
Wolhuters	3 6*	4 0†	3 9	3 9*
Zaaiplaats Tins	7 3	7 0*	7 3*	7 0*

*Buyers. †Sellers. aOdd lots. bEx London.

THE SAKALAVA SCHEME.

A meeting of shareholders of the Sakalava-Madagascar Proprietary Oilfields, Ltd., was held last week in Consolidated Buildings.

The chairman, Mr. G. D. Alexander, said that when he last addressed them he expressed very definite views as to the uselessness of having to fritter away money in trying to find oil on so meagre a capital as they had, and stated that it was desirable that they should conserve their funds and arrange to send to Europe one or more directors to endeavour to get some influential people interested. After that meeting they received very encouraging reports from the fields, and they decided to continue a little longer. However, they realised that if they continued to spend money they would find that they had not the funds to provide for the larger project of obtaining influential support, and they decided to stop work on the fields and to send two of their directors to Europe. Their deputy-chairman, Mr. W. P. Fisher, consented to go, and they decided to ask Mr. P. Dreyfus to go also, Mr. Fisher being well known to English financiers and Mr. Dreyfus being well known to French financiers. An agreement was signed and proposals would be placed before a special general meeting to be held on Wednesday afternoon, August 11, circumstances having made it impossible to hold the special meeting the day before, after the ordinary general meeting. He wished to impress on them that if at the special general meeting the proposals obtained by the two directors mentioned were to be accepted or not, it would be necessary, according to the articles of association, to have at least 50 per cent. of the shares represented at the meeting, and that would mean that 88,000 shares must be represented; therefore he hoped that every shareholder who was unable to be present would send in his proxy.

The report and accounts were unanimously adopted.

Mr. Fisher said it was his intention to lay before shareholders at the special general meeting a report of the actions of his colleague and himself during the time that they were absent on the company's business. He would describe the negotiations that had resulted in the agreement, which he hoped would enable them to conduct operations to a successful issue.

Southern Van Ryn.

At 310 feet in the borehole of this Company's property, the Nigel Reef has been located.

THE ANNUAL REPORT OF THE U.S. BUREAU OF MINES.

Safety and Rescue Work—Explosives—Coal—Mine Investigation—Valuable Work.

In the introduction to his ninth annual report for the fiscal year ended June 30, 1919, the Director of the United States Bureau of Mines states that on July 1, 1918, the Bureau was centring its efforts on war work.

As regards the work of the several divisions, the report states that the administration of the mining division during the fiscal year was carried on through four sub-divisions or sections: (1) Safety and rescue work; (2) explosives testing; (3) coal-mine investigations, the headquarters of these three sections being at the Pittsburgh station; and (4) various investigations under the direct charge of the Chief Mining Engineer.

The mining investigations, conducted by the Pittsburgh station, included investigations of coal-mining methods, rescue and first-aid work, and the tests at the experimental mine at Bruceton, Pa., included physical testing of explosives, tests of explosibility of coal dusts, and experiments with geophones for mine work. The work of investigation of the use of electricity in mines at the Pittsburgh experiment station during the year consisted of the routine investigations connected with the approval of permissible apparatus, field investigations and research investigations tending to the establishment of new schedules. A bulletin now in course of publication covers all of the equipment approved for coal-cutting apparatus. Considerable work has been done in collecting data on the mine laws of the various States, especially those laws relating to the use of electricity.

In order to conduct the mine-safety work to the best advantage, the mining regions of the country are grouped within eight districts, planned with especial reference to convenience and efficiency. These districts centre around the rescue stations and the headquarters of the rescue and mine-safety cars and do not coincide with the districts of the mining experiment stations of the Bureau. The first consideration in locating headquarters of cars and the position of safety stations is that of mine distribution and of railroad facilities.

Physical tests of explosives are made at the experimental mine, near Bruceton, Pa. Owing to the demands of the War Department on the testing laboratories, all regular work for the mining industry was discontinued until after the signing of the Armistice, when such work was resumed. During the year two new explosives were placed on the permissible list. On June 30, 1919, the list contained the names of 162 explosives, as compared with 160 on June 30, 1918.

The effect of the speed of deformation or rupture of steel on the character and number of Neumann bands formed is being investigated in co-operation with the Council of National Defence by the Explosives Engineer. The investigation will be continued during the coming fiscal year.

The study of the factors governing coal-dust explosions, and the devolpment of methods for preventing or stopping explosions was continued at the experimental mine, near Bruceton, Pa., though restricted by war work during the early part of the fiscal year. Explosion tests were made with two sub-bituminous coals from Colorado. Tests of barriers were made in connection with these explosions.

During the War, experiments with the geophone were made in co-operation with Captain E. B. Stephenson, United States Engineers. An investigation of the value of the geophone for mine rescue and mine-survey work is nearly completed. The instrument has been considerably improved over the form employed by the War Department and has been successfully used in locating mine fires, mining in drifts, and raises and leaks in water pipes. The investigation has shown that the instrument will be of great value for locating entombed miners.

The horizontal dust-explosion gallery at Bruceton has been used to test the inflammability of a number of samples of coal dust. Reports on the inflammability of steel-mill dusts, coke dust, pitch dust and other dusts have been made.

As regards the work of the Fuels and Mechanical Equipment Division, the Bureau continued to function in an advisory capacity to the fuel conservation section of the United States Fuel Administration. A study of possible coal standards was made in connection with the matter of bunker coal. A system of Federal fuel inspection was devised fitting the present needs of producers and consumers. A Bill authorising such work was prepared. An investigation of lignite under a Bill appropriating 100,000 dollars for the purpose was begun and a plan of procedure was outlined as well as a study of plant detail.

A general survey of the use of powdered coal is planned, its purpose being the preparation of a bulletin giving the facts without bias. Many of the published articles on powdered coal were prepared by people interested in manufacturing powdered coal equipment, and some of the information in such articles is misleading.

Tests have ben started to determine the best method of burning domestic-size coke in the heating apparatus now used in dwellings. Tests will be made in steam boilers of several makes, in hot-air furnaces, heating stoves, and open grates—comparative tests being run with coke, anthracite coal, and high-volatile bituminous coal. Another series of tests will be made to determine the principles governing the design of apparatus for burning coke. These investigations will be made in co-operation with several coke-producing companies and designers of by-product plants. Part of the work will be done at the Minneapolis station.

A study of mine equipment, especially hoisting ropes and safety catches, was resumed in the latter part of the year. A study of safety gates in mines was begun. A technical paper on the use of wire rope in mines was written and is now in the press.

The Railway Rolling Stock Position.

In the Assembly this week, Mr. Nettleton asked the Minister of Railways: (1) Whether he would state the reasons why new railway coaches were being imported into the Union, (2) what was the finished cost of each coach, and (3) whether he would give an assurance that all railway coaches would be built at the Union workshops? Sir Thos. Watt, the Minister, replied: (1) To handle the traffic and endeavour to overcome complaints with regard to the shortage of passenger accommodation, (2) this depends on when the order was placed and the type of each coach, (3) the Administration's policy is to build as many coaches in the Union as possible, and at the present time 127 coaching vehicles are being built in the railway workshops. Notwithstanding the acute shortage of equipment of all descriptions and the congested condition of the work in the railway shops, certain of the workshop staff have refused to work overtime and piecework. This attitude will not hasten the overtaking of the arrears of work now in hand, or the time when the whole of the Administration's work can be undertaken locally. At present the Administration is faced with the position of having to refuse traffic, thereby losing the additional revenue that is sorely needed to help meet the heavy increased expenditure in wages and materials. If the hon. member will use his influence with trade unions in Durban to assist in overcoming the arrears of work in the railway workshops, he will be advancing the end he has in view by placing the Administration in a better position to undertake construction work locally and to curtail oversea orders.

TUNGSTEN ORE OCCURRENCES IN SOUTH AFRICA.

Notes from the Monograph Prepared by the Imperial Institute.

Tungsten minerals are reported to occur in various parts of the Union of South Africa, but up to the present no deposit of importance has been found. Wolframite occurs associated with Cassiterite at Kuils River in the Cape Province, and also in some parts of the Waterberg tin-fields in the Transvaal. Scheelite has been found in some quantity in the Transvaal at the Stavoren Tin Mine, and also near Leydsdorp.

The output of tungsten in the Union of South Africa is reported as 4·432 and 8·615 short tons for 1916 and 1917 respectively. This output was from the Transvaal, with the exception of 2·164 tons from the Cape in 1917.

In connection with the deposits of the Union of South Africa, mention should be made of those of South-West Africa, where tungsten minerals occur at various localities. Wolfram has been found in pegmatite veins traversing granite 10 or 12 miles S.E. of little Karas, and 2 miles from the railway line running from Seeheim to Kalkfontein in Great Namaqualand, associated with chalcopyrite and molybdenite. The surface gravels of the district also contain wolfram. Wolfram is found as radiating masses in granite at Ubib and Goages in the Swakopmund district. It is also reported to occur in the pegmatites of the Erongo Mountain area [61].

Rhodesia.

According to a report recently issued by the Director of the Geological Survey [62], wolfram and scheelite occur at numerous localities in Southern Rhodesia: from Wankie to Umtali, and from Lomagundi to the Limpopo River. Three types of occurrence can be recognised, as follow: (*a*) acid dykes, varying from aplite to pegmatite, often more or less converted into greisen—these are found both in the marginal parts of granite masses and in the schists surrounding them; (*b*) gold-quartz veins with sulphides and disseminated scheelite; (*c*) an association of tungsten ore with copper ores in quartz reefs.

In this region scheelite seems to be, on the whole, more abundant that wolfram; it is found in small quantities in the Wankie district, and in association with bismuth minerals 40 miles east of Lusaakas, in Northern Rhodesia. In the Umtali district scheelite has been found with tinstone and tantalite in the Odzi reserve, and in a garnet-actinolite rock near Old Umtali. It is said to be common in small quantities in reefs near Bulawayo, and near Que Que in the Gwelo district it is reported in a quartz reef with gold. The gold-quartz reefs on the Mombi River also contain some scheelite, and a copper-bearing variety comes from Sinoia, in the Lomagundi district. In the Gwana district wolfram is reported from places in the country south and west of the Umzingwane coalfield. The Scheelite King Mine, 9 miles west of Gatooma, in the Hartley district, produced a few years ago 40 or 50 tons of ore from a quartz reef near the margin of a granite mass. Tungsten ores also occur in dykes and reefs near the margins of granite near Selukwe, and in the Ndanga district, near the Sabi River, in a country rock of chlorite schist.

By far the most important tungsten occurrence in Rhodesia is that at Essexvale in the Umzingwane district, which has been made the subject of a special report by Mr. A. E. V. Zealley [63]. Here sixteen distinct reefs are known, striking E.-W. and dipping N. at from 30° to 50° They consist of greisen formed from aplite, porphyry or pegmatite, with lenses of quartz and very finely disseminated wolfram and scheelite, as well as flourspar, tourmaline, topaz, and a little galena. In April, 1917, prospecting was in active progress, and concentartes were obtained containing up to 71 per cent. tungsten trioxide. In this area also patches of so-called "rubble," a residual deposit, lying on and near the reefs, yielded from 2 to 8lb. of wolfram per ton. The scheelite was at first thrown away, but now adds much to the value of the concentrate. Here the best results have been obtained with the ordinary rotary diamond washer, while in some places the simple hand-picking by natives has yielded considerable amounts of ore; near the western end of the Lunar Block Reef 1,600 lbs. of wolfram were obtained in this way.

The production of wolframite in Rhodesia during 1916 and 1917 is reported to have been about 2½ and 11¾ short tons respectively. The total production of tungsten ore up to the end of 1917 was 142½ short tons.—*From the Monograph prepared by the Imperial Institute.*

Uses of Vanadium.

In connection with the flotation of the African Vanadium and Lead Mines, the following extract from an article in the Engineering and Mining Journal (New York) of April 3rd, 1920, is noteworthy:—The chief uses of vanadium may be listed as follows: It is used for high-speed tool steels in amounts varying from 1 to 2 per cent. and for machine tools; also, extensively in automobile construction for springs, transmission parts, axles, crank shafts, connecting rods, sterring knuckles and levels, and for ball and roller bearings. It is used for locomotive frames, axles, connecting rods, piston rods, valve parts, and springs; for hammer piston rods, pneumatic tools, metal cutting saws and edge tools; for crank shafts and line and tail shafts of warships; for torpedo air flasks; airplane engine construction and fittings; and for thin armour for tanks, cars and trucks. It is also used for machine-gun barrels, rifles and heavy guns, and in making cast-iron parts of gas and oil engines; in short, wherever a steel of high physical properties and of ability to stand great fatigue and heavy duty is required.

Swaziland Tin, Limited.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Fifteenth Ordinary General Meeting of Shareholders for the year ended 30th June, 1920, will be held in the Board Room, The Corner House, Johannesburg, on THURSDAY, 23rd SEPTEMBER, 1920, at 3 p.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 30th June, 1920, and the Reports of the Directors and Auditors.
2. To confirm the appointment of Mr. F. Raleigh as a Director of the Company, in place of Mr. H. C. Boyd, resigned.
3. To elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
4. To determine the remuneration of the Auditors for the past audit, and to appoint Auditors for the ensuing year.
5. To transact any other business which may be transacted at an Ordinary General Meeting, or which is brought under consideration by the report of the Directors.

The Share Transfer Books of the Company will be closed from the 16th September to 23rd September, 1920, both days inclusive.

By Order of the Board,
TRANSVAAL CONSOLIDATED LAND AND
EXPLORATION COMPANY, LIMITED,
Secretaries.
Per C. L. READ.

Head Office,
The Corner House,
Johannesburg.

5th July, 1920.

THE REPORT OF THE BRITISH NON-FERROUS COMMITTEE.

The Report of the Departmental Committee appointed by the Board of Trade to investigate the British Non-Ferrous Mining Industry has now been issued as a White Paper covering some 46 pages. After some introductory observations, largely of a geological and historical nature, the Committee deals with the position and prospects of the tin-mining industry, adding statistics relative both to the mines as a whole and to individual properties. A similar procedure is followed in the case of lead and zinc, barytes mining being briefly commented upon. Other questions discussed are transport, taxation, leases, etc., a mines tribunal, a mines department and State aid to mining. The Committee's recommendations, briefly summarised, are:

1. That the various duties relating to the mining of minerals other than coal (now entrusted to a number of departments) should be centralised in one organisation which should undertake at once certain geological and statistical work. This organisation would become a sub-department of the Mines Department.

2. That the recommendations of the Royal Commission on Metalliferous Mines and Quarries (1914) in regard to the health and safety of workers in metalliferous mines should be adopted with a modification referring to inspectorships.

3. That is should be made compulsory on mine-owners to deposit with the Department of Mines, and to bring up to date, both surface and underground plans of all mines. The practice followed in the Union of South Africa might, the Committee thinks, well be followed.

4. That the duties indicated in paragraph 116 should be undertaken by the Government, and to this end the existing Mineral Resources Department Branch of the Board of Trade should be expended and furnished with a suitable technical staff, including mining engineers and mining geologists, with a view to its ultimately forming one of the sub-departments of a new Mines Department.

[Paragraph 116 recommends, inter alia, that the proposed organisation for minerals other than coal should, among other functions, ascertain and keep in close touch with the technical position of metalliferous mines, offer advice in regard to the improvement of existing methods, or the initiation of new schemes of development, and in particular to advise as to Government action in appropriate cases. For this work a staff of trained mining engineers, qualified by wide experience of the methods of mining abroad as well as at home, would be necessary.]

5. That any party desirous of obtaining a mineral lease, or of obtaining a modification of an existing lease, should, in the event of disagreement, have the right to refer to the Mines Department for its decision upon the matters at issue.

6. That a Mines Tribunal should be set up with power to decide upon appeal all questions relating to mineral leases, wayleaves, easements, barriers, encroachments and the like which shall have been referred in the first instance to the Mines Department; and that such tribunal should consist of an independent chairman, assisted by two technical mining assessors.

7. That where the owner or lessee refuses to accept any recommendation made by the Mines Department, which that Department considers essential to prevent the loss of minerals to the nation, the Mines Department should have power to make such compulsory order as it may deem necessary to meet the case, subject to appeal to the tribunal.

8. That in regard to State aid to mining the Government should take powers, analogous to those in force in the Dominions, to extend financial assistance, on the advice of the Mines Department, to mining companies to enable them to tide over their difficulties or to undertake approved exploration and development; and that the funds at the disposal of the Development and Road Improvement Commissioners [set up under the Act of 1909] should be made available for this purpose. [The Committee, however, makes no specific recommendation as to the method of financing to be adopted.]

9. That in regard to the Halkyn (lead and zinc) mines drainage problem the Government should intervene in the public interest. If, on the one hand, the mining and drainage interests can come to an agreement and find the necessary financial support for the prompt completion of the gravitation drainage of the district, the various obligations of the Halkyn District Mines Drainage Company to the Ministry of Munitions might be remitted on generous terms. But that, on the other hand, if no agreement be reached, the Government should retain its rights in respect of loans, and should set up an authority with the statutory powers necessary to drain the district, even to the extent of overriding the powers conferred on the Drainage Company by the Acts of 1875 and 1913.

10. That the Government should be prepared to purchase, if called upon to do so, the blende production of the zinc mines of the country at a price equivalent to the cost of the Australian concentrates, namely, first cost, freight and the expense (including interest) of financing the operation, plus £1 per ton to cover the greater value to the smelters of British ores.

The report is signed by H. B. Betterton (Chairman), Henry F. Collins, Fredk H. Hatch, R. Arthur Thomas, James Wignall and J. Harris—the two latter subject to a reservation in favour of nationalisation.

Head, Wrightson & Co., Ltd.

The directors' report and balance sheet of Head, Wrightson & Co., Ltd., will not be completed for presentation at the annual meeting, in consequence of the settlement of accounts with various Government departments not being finally arranged. The directors therefore propose to transact such business of an ordinary general meeting as the election of auditors, etc., and then adjourn the meeting to some convenient date to be fixed later, for the purpose of receiving the report and accounts. The directors, being satisfied that the profits for the financial year ended April 30, 1920, will permit of a further payment of dividend in addition to the interim dividend of 5 per cent. paid December 31, 1919, propose to pay 5 per cent., less income tax, on each £5 ordinary share, making the total payment 10 per cent. for the year, less income tax.

Latest Company Registrations.

FOREIGN COMPANIES.

The Sheba Gold Mining Co., Ltd., care of R. W. Townsend, 65, President Street, Johannesburg; capital, £300,000.

The Transvaal and Natal Collieries, Ltd., care of William Ingham, 101-102, Consolidated Buildings, Fox Street, Johannesburg; capital, £250,000.

Emerald Diamonds, Ltd., care of Maldwyn Edmund, 90-92, Exploration Buildings, Commissioner St., Johannesburg; capital, £500,000.

S. Senier and Sons, Ltd., care of Rowland Brown, 201, Consolidated Buildings, Fox Street, Johannesburg; capital, £150,000.

ALTERATIONS AND ADDITIONS TO FOREIGN COMPANIES.

British Westinghouse Electric and Manufacturing Co., Ltd.
Hadfields, Ltd
Vacuum Oil Company of South Africa, Ltd
W. M. Cuthbert and Company, Ltd.
The Transvaal and Natal Collieries, Ltd.

The Coal Export Trade.

During the week Colonel Creswell asked the Minister of Mines in the Assembly (1) if the Government had been requested by the Transvaal Coal Owners' Association to prohibit the export of the lower grades of South African coal, (2) if the Government knew that the owners of low-grade coal strenuously objected thereto, and (3) what answer had the Government returned or proposed to return to the request of the Association? The Minister replied as follows: (1) No steps have yet been taken with regard to prohibiting the export of low-grade coal from the Union. Nor has any request been made by the Transvaal Coal Owners' Association in this matter. Owing, however, to the results of the export of low-grade coal to certain markets which have injuriously affected the prospects of the coal export trade in those markets, the Government has opened negotiations with all the interests concerned with a view to adopting some method of grading all coal for export as is done in the case of mealies and other products from the Union. (2) The only objections so far received are from certain exporters of the low-grade coal which has had the effect abovementioned. (3) This question falls to the ground as the proposal has emanated from the Government. The Coal Owners' Association is already doing its best by systematically checking and sampling at the ports to make sure that only coal with a guaranteed calorific value is exported. Under these circumstances low-grade coal is exported on the good name of the high-grade article. These efforts to build up the good name of the South African export coal will be adversely affected by the export of inferior coal. It is presumed that the Coal Owners' Association will be in agreement with the Government view.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Trade Finance Quite Sound—Commercial Exchange—Encouraging Business—Gold Higher—Electrical Goods—Iron and Steel—Oils, Colours, Brushware and Glass.

We must endeavour to discourage pessimism. The cables and paragraphs from oversea are distressing, but then they are oversea cables, and often illustrate one small side of the actual position. But they cannot be ignored altogether, and may be we shall get some nasty financial slides through labour troubles, taxation difficulties, and shortage of raw materials in the countries concerned. That should assist South Africa with cheaper mining materials, clothing and such like. Now, what are our troubles? Take wool. There has been a lot of money lost—maybe a million, according to some estimates—but as the trouble has been on for almost six months, most of the accounts have been adjusted by past payments and long-dated bills, The real strength of the position is that the dealers and speculators originally made a lot of money during the War, therefore they are simply refunding it now. Hence the wool position will not damage South Africa over-much, but obviously a number of individuals will be minus credits at their bankers, with overdrafts thrown in wherever possible. The maize position is much the same, as the forward contractors have been the men to suffer, and not as a rule the dealers for a rise. As compared with these, the mining material merchants have made money, as their stocks were always advancing. This applies to most of our Johannesburg merchants, as, for example, a suburban draper's shop came into the market through illlness, and a friend of the writer's was put in. He sold out after the Armistice, and secured for him a nice little fortune. He remarked when he was going away that he really did not know how he made the money, as he kept on buying the goods month after month in Johannesburg and selling them over the counter. He did not profiteer, but naturally raised prices when other people advanced theirs. Therefore, as a general statement, any losses made in South Africa can be easily met, as it usually means transferring the accounts in the banks from one customer to another. We may get hurt in our new industries, as, for example, quantities of the cheapest boots are coming from England, therefore our South African-made boots may be crowded out to the extent of the importations. Furniture will also come in to some extent, and similar remarks apply to the majority of our manufactures. Even all this will not interfere with our prosperity in the aggregate, because the high rate of wages all over the world will give time to enable our manufacturers to readjust things. Our real troubles may come through the mines and the labour question, as at the moment the engine-drivers' Sunday strike does not look nice, as the Chamber of Mines seem to be standing aloof awaiting events.

COMMERCIAL EXCHANGE.

The month of August opened fairly well The South African Railways have placed a number of extra orders, chiefly in connection with the repairs and upkeep of locomotives, also coal trucks. The mines are still cautious, but the Rand Mines are buying freely, and with one exception all the groups are improving in that respect. The Belgian Congo mines are in the market for all kinds of miscellaneous hardware, which came forward to fill up orders quite freely. There is a general demand for machine and tradesmen's tools, the prices of which have advanced only recently quite 10 per cent. Judging from the orders, these tools do not seem over-plentiful in other parts of South Africa. There is a better tone throughout commercial circles, brought about by the price of gold having risen to 112s. per ounce, which is all to the good for our mines. Unfortunately, the mysterious engine-drivers' Sunday strike is causing some misgivings. Then there is the Polish-Russian affair to keep business back in the doldrums. The new Currency Bill, which is expected to become law on August 10th, has given a financial steadiness to business which is badly wanted, as the banks may already be a little more liberal, but not over-much at present. A Reuter's London cable dated August 1st says owing to the slump in trade most of the large engineering ironworks in the Black Country and Sheffield, and the boot factories at Northampton, have closed down for a fortnight (for the August holidays), which is the longest recorded holiday. The North Country shipbuilders are cancelling big orders owing to the highest cost of materials. It has been mentioned in these notes that the world

Wire Screening

All gauges and sizes for all purposes fully dealt with in our new Catalogue. You can save money and ensure quick delivery by ordering from this Catalogue.

Catalogue Post Free from

The S.A. Wire Co., Ltd.,

P.O. Box 651, Durban. P.O Box 2139 Joh'burg.

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

cannot pay such high prices, therefore we must expect landslides from these sources, more particularly as Belgium and other Continental countries are beginning to make themselves felt in putting their specialities on the world's market. And Germany has got a loan from the Allies to assist them in the coal production, and they are also coming into the British market with yarns, having sold a big parcel to the Bradford manufacturers.

ELECTRICAL GOODS.

Business in the electrical wares section is rather quiet in the absence of any outstanding building operations in town or country. Prices remain about stationary, but the tendency is towards lower levels. Ceiling roses, adaptors and sundry other lines which were heretofore in demand and practically unobtainable, are now on hand, and if one exempts pear pushes and rosettes for bell-work (which are not on hand, and for which any price is obtainable), one may say generally the electrical goods market is now well supplied. Town business is rather on the quiet side, but fairly large orders are coming from outside, particularly at the present moment, from the Free State, which is now installing their Municipal electric plant. Vereeniging is also ordering pretty freely.

IRON AND STEEL.

A leading iron and steel bar merchant did not agree that business was easier. His experience was that last month was a good one, and this month has opened well, as there is a great demand for iron and steel bars, also steel plates He had not sufficient of the varieties usually asked for. His men worked on Easter Monday to prepare the details for Tuesday and Wednesday. There is no alteration in prices, but the tendency is very firm, and an all-round increase is likely. Another merchant says that the talk of the drop in prices is not justified, as the information from overseas is that everything is on the increase in hardware goods. There are many lines here that are sold cheaper than they can be purchased in England. Shovels have been sold at 62s. 6d. a dozen here, and they cost 61s. f.o.b. at an English port. The ordinary quotation here is about 65s. to 70s. for small quantities. ¼in. steel plates are 49s. 6d. to 50s. per 100lbs. Imported mild steel is 37s. 6d. to 40s.; drill steel, 7½d. lb.; hollow, 1s. 1d. to 1s. 3d.; shafting, 7½d. to 8½d. lb.; wire naills, 52s. 6d. to 65s. per 100lbs. Wheelbarrows are scarce and dear at 75s. each, as compared with 16s. 6d. in pre-War days.

OILS, COLOURS, BRUSHWARE.

The following are extracts from an August trade report:—Genuine white lead (Elephant brand) has now arrived, and the Johannesburg price is 110s. per 100lbs., and 1s. 3d. for small lots. English genuine red lead, 1s. 3d. lb., in 6¼lb. kegs and upwards to 50lbs., when it is 1s. Genuine dry white lead, 1s. lb. Linseed oils, raw or boiled, small bottles, 2s. 3d.; 7lb. tins, 14s.; 4 i.g. drum, 70s. Genuine spirits turpentine, 3s. small bottle, and ditto substitute 10s. 6d. per tin 5-6 i.g. Red oxide in oil 90s. per 100lbs.; 6¼lbs. and other sizes, 1s. lb. Putty, 9d. lb in bladders. Brushware: Lily bristles being unprocurable, all the best makes are arriving in mixed grey and black bristles at very much enhanced prices. Glass: Plate-glass has reached an acute stage, as it is practically unprocurable. Sheet glass is arriving more freely, and quotations on application.

SOUTH AFRICAN RAILWAYS AND HARBOURS.

Applications are invited for the position of Manager of the new Steel Foundry now in course of erection at Pretoria.

Applicants must have a thorough practical experience in the manufacture of steel castings by the "Tropenas" process, have a thorough knowledge of the working of modern annealing furnaces, core stoves, shot blast, plant, etc., and must have a thorough analytical training and be capable of taking entire control of the Steel Foundry Laboratory in addition to the Steel Foundry.

Applicants should communicate direct with the Chief Mechanical Engineer, Pretoria, from whom full particulars can be obtained.

Johannesburg,
26th July, 1920.

W. W. HOY,
General Manager.

SOUTHERN VAN RYN

Some good reasons for investing in this great OUTCROP mine on the Van Ryn and Nigel Reefs :—

(1) The Mine is unique in the world's greatest goldfield.
(2) 2,146 Gold Claims entirely owned by Shareholders—no Government share of profits to pay.
(3) Over £40,000 cash in hand and new working capital continually being paid in.
(4) £50,000 worth of plant, equipment and stores all paid for.—No debentures and no debts.
(5) Two pay reefs to draw from, whose steep dip means large tonnages and cheap mining. The Nigel Company earned nearly a million profit on the Nigel Reef alone, from about one-eighth of the number of claims on the Nigel Reef owned by Southern Van Ryn.
(6) Will begin gold production in October from the 30,000 tons of pay reef already developed.
(7) 5,000,000 tons of good coal on the property, which can be mined at 3s per ton. This coal is already supplying power to the gold mine, and is alone worth more than the Company's capital.

Buy while the market is low for the rise which is coming; or, better still, buy to hold for dividends, in

THE COMING GREAT MINE OF THE FAR EAST RAND!

For further particulars write or apply to the Managing Director, Mr. W. E. BLELOCH, 3, Transvaal Bank Buildings, Fox Street, Johannesburg.

Box 3807. **Tel. 5892.**

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent

Lardine, Limited

(Incorporated in the Transvaal.)

DECLARATION OF DIVIDEND NO. 2.

A Dividend of 7½ per cent. (1s. 6d. per share) has been declared by the Board for the period ending 30th June, 1920 (three months) payable to shareholders registered in the books of the Company at the close of business on 19th August, 1920.

The Transfer Books will be closed from the 20th to 31st August, 1920, both days inclusive.

By Order of the Board,
LARDINE, LIMITED.
C. H. NORMAN, Acting Secretary.

Head Office: Germiston North.
P.O. Box 202, Germiston. 20th July, 1920.

ASBESTOS

HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

The S. A. Mining & Engineering Journal

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891. ESTABLISHED 1891.

VOL. XXIX., PART II.] JOHANNESBURG, TRANSVAAL, AUGUST 14, 1920. [No. 1507.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE

Mining Notes and News ... 593

Topics of the Week:

The Steel Contract ... 595

The Working Costs Problem ... 597

Along the Reef ... 599

The Gold Below Johannesburg ... 600

The Coming Oil Boom ... 601

Base Metals... ... 603

Our Expanding Coal Trade ... 605

Progress of "Safety First" Movement ... 606

July Output and Profit ... 607

Rhodesian and Belgian Congo Section:

Rhodesian Mining ... 609

Correspondence and Discussion:

The Efficient Use of South African Coal; Coal Tar Disinfectants ... 611

The Week in the Sharemarket ... 613

Information for Investors ... 615

A New Gold Law to Assist the Prospector ... 616

Metal Markets ... 617

Diamond Returns for June ... 618

A Mining Crisis in Cornwall ... 619

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades ... 621

Mining Notes & News.

As we go to Press.

The share market is slightly firmer. Modder B's, African Oils and Transvaal Silvers are firmer.

The latest price of fine gold is £5 13s. per ounce.

We hear of remarkable mineral discoveries in the Cala district of the Cape Colony. Valuable deposits of iron platinum and coal are stated to have been located, and important firms are said to be interested.

The deadlock between the Chamber of Mines and the engine drivers continues, and one result of the week-end strike will probably be the closing down of No. 2 shaft of the Village Deep.

* * * *

Frank Smith Diamonds.

Latest news from the Frank Smith Diamond Mine is to the effect that a large stone of excellent value has been recovered in the course of preparations for washing, which will commence in two or three weeks from date.

* * * *

A New Heidelberg Discovery.

There has been a new find in the Heidelberg district. A series of gold-bearing reefs, one of which is said to be 12 feet wide and carrying high values, has been discovered. Interesting developments are promised.

* * * *

Diamond Drilling on the West Rand.

Important diamond drilling operations have just been commenced on the West Rand under the auspices of the Coronation Syndicate. A borehole has been located on the farm Luipaardsvlei No. 10 by Messrs. Calderwood and Thorburn and drilling commenced on Monday. This farm lies between the farms Randfontein and Uitvalfontein, on which the Randfontein group of mines are located to the north, and Gemsbokfontein, the property of the Western Rand Estates, Ltd., to the south. A strip of ground on the north of Luipaardsvlei was proclaimed a public gold digging in 1896, and for some years was the scene of active exploitation by various companies in the search for the extension south of the Randfontein Reef, by means of surface prospecting and numerous boreholes.

SOME GEOLOGICAL FEATURES.

The excellent maps of this district prepared by well-known geologists, such as Carrick, Molengraaff, Curtis and others, have defined the geology very accurately, and the latest report and maps covering the Western Witwatersrand prepared by Dr. E. T. Mellor and published by the Government Geological Survey Department, confirm the earlier observations and add a great deal of more detailed information respecting this particular district. The section south of Randfontein still remains somewhat of a puzzle and the problem of the extension of the Randfontein Reef series has been rendered particularly complicated by the disturbed character of the outcrops in the vicinity and the extent to which the Witwatersrand formation is covered by dolomite and Black Reef rocks of a later age. The abrupt cutting off of the reefs to the south of Randfontein against the great

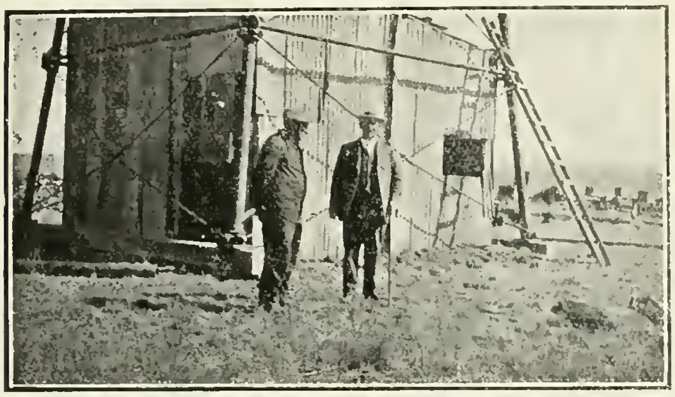
Witpoortje fault has made the location of the gold carriers particularly difficult, and numerous boreholes have failed to achieve the results expected. Luipaardsvlei 10 has subsequently been lying dormant as regards further prospecting and boring for about 10 years.

THE MISSING LINK.

The gap from Randfontein, extending south for a distance of five miles across Luipaardsvlei to the Western Rand Estates, where payable reef was located in boreholes, still remains to be proved.

AN AREA OF GREAT POSSIBILITIES.

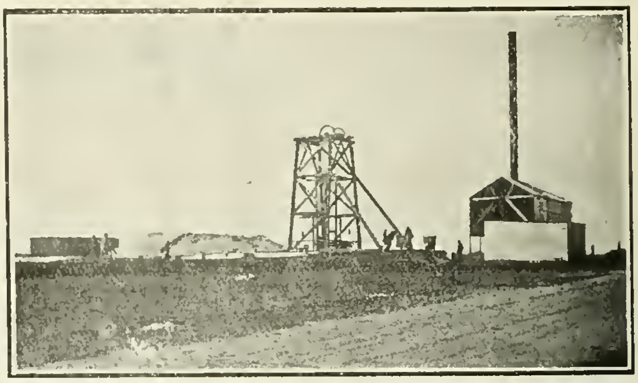
A series of boreholes were put down on the northern proclaimed portion of Luipaardsvlei some years ago, but without success. Surface prospecting has exposed the sequence of the beds and the conclusion is that the low angle of dip and the increase in the thickness of the beds compared with other sections of the Rand have been misleading in calculations where the chief object was to strike the reef at the earliest possible moment. About the centre of Luipaardsvlei, a borehole was put down to a depth of 2,100 ft. After passing through about 480 ft. of dolomite and a small thickness of Black Reef quartzite, the Upper Witwatersrand beds were intersected about 500 ft. consisting of quartzites down to 810 ft., then through shales having a thickness of 844 ft., which have been correlated with Main Reef footwall shales lying on the Upper Jeppestown quartzites at a depth of 1,654 ft. At a depth of 529 ft. a pebble reef about 2 ft. thick, containing pebbles from pea to walnut size was encountered, but was not regarded at the time of drilling as having much importance. A re-examination of the core at a later date and a careful correlation with the borehole sections from the Western Rand Estates led to the conclusion that this pebble reef and the sequence of the underlying beds were practically identical and that the reef struck corresponded with what is locally known as the Boulder Reef. It has been concluded that the No. 8 borehole was located too far west to intersect the rich Randfontein Leader and West Reef. On this hypothesis it is now the opinion that a borehole if put down a few hundred feet east of No. 8, will intersect the Randfontein Reefs, which are about 300 ft. apart at a depth of about 600 ft. and 900 ft. respectively. The high percentage of payable footage recently developed on the Randfontein Leader and West Reef and the striking of high values at depth by shaft sinking on the Randfontein properties as published, go far to renew confidence in this section of the gold fields and prove that reef values and workable widths continue with depth. The farm Luipaardsvlei No. 10 thus offers a unique opportunity for exploitation and there is probably no other area available on the Witwatersrand which offers such an attractive opportunity to pursue an extension of the gold-bearing area, lying as it does between two points which have been proved to contain payable gold values. The borehole which was commenced at the beginning of the week is situated roughly half-way between the Midas Estate and the Luipaardsvlei homestead and obviously a great deal of importance attaches to the results which will be secured in it.



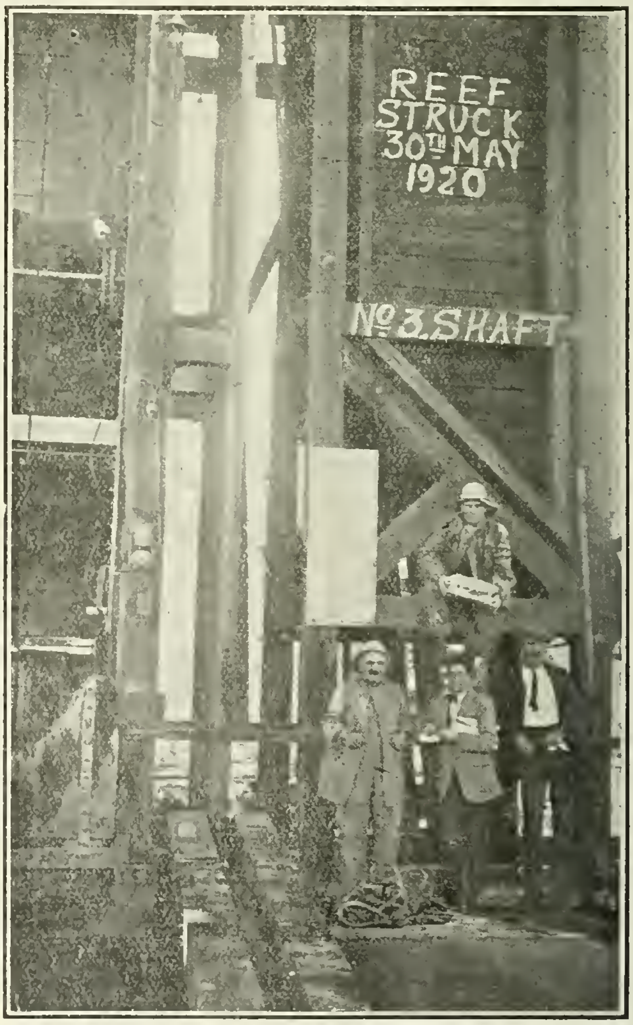
THE NEW BOREHOLE ON LUIPAARDSVLEI No. 10.

Better Prospects at Springs.

Things are looking up again at Springs, that proposition of misfortunes which has broken many hearts. Last month's profit was £32,600 a very satisfactory showing—and development is understood to be improving. The accompanying photograph shows an employee holding a section of the reef which was recently cut in No. 3 shaft, and which where intersected gave such poor values. But more recently, so we understand, the position in this portion of the property has improved materially. Another photograph illustrates the new No. 4 shaft.



THE NEW OR No. 4 SHAFT OF SPRINGS MINES, WHERE SINKING HAS JUST BEEN STARTED.



WHERE HOPE "SPRINGS" ETERNAL.

The New Silver Company.

We understand that preparations are going on apace for bringing out the new company which is to be floated on Shimwell's portion of Dwaarsfontein, which adjoins the portion upon which the Transvaal Silver and Base Metals is working. Mr. Oliver King's report on the property is now completed and is satisfactory and even optimistic. We hear that the requisite working capital is guaranteed.

EDITORIAL.

THE STEEL CONTRACT.

After a debate extending over the greater part of two days, the agreements entered into between the Minister of Railways and the Pretoria Iron Mines, Limited, otherwise the South African Iron and Steel Corporation, Ltd., were ratified and confirmed in the House of Assembly on Monday. The chief clause in these contracts is that the Railway Administration agrees to take from the Corporation one-half of its output of rails and other iron and steel requirements, and in confirming and ratifying this agreement our Parliament of the People has committed the iron and steel requirements of the Railways of the country to the South African Iron and Steel Corporation, Ltd., for a period of 17 years; and this notwithstanding the existence of an agreement of a very similar nature entered into by the Government with the Union Steel Corporation at Vereeniging eight years ago, and which latter agreement still has eight years to run. The Select Committee on Railways and Harbours, in their seventh report, recommended that the agreements should not be confirmed, and contended: "Your Committee, having considered the memorandum of agreement between the Minister of Railways and the Pretoria Iron Mines, Ltd., and having taken evidence thereon, reports that, while recognising and approving of the desire of the Administration to encourage the establishment of an iron industry in the Union, is of opinion that a better means to that end would be to follow the example of the Government of India by intimating publicly that the Administration will be prepared to purchase its requirements in South Africa without binding the Administration to any one manufacturer, and recommends that the proposed agreement be not confirmed." Sir Thomas Smartt's motion for an adjournment in view of the fact that the report and evidence had only recently been placed in possession of members found a good deal of support, but the Government, aided by the Backveld, rushed and steam-rollered the sanction of the contract through the House; and we are not in the least surprised that the business has provoked a great deal of criticism and has left a nasty taste in a good many people's mouths. The voting was remarkable. The Nationalists threw in their lot with the Government and ranged themselves against the majority of the Unionists, Mr. Merriman, and the Labourites. It is not often that this journal finds itself on the side of Labour, but in this particular instance we are quite in sympathy with Col. Creswell, Mr. Boydell and Mr. Sampson, who, with the majority of Sir Thos. Smartt's party, strenuously opposed the ratification of the contract. Whilst we dissociate ourselves from Labour's usual hysterical demand for Nationalisation, we are nevertheless in full sympathy with the Unionists and with Colonel Creswell and his lieutenants in asking that the agreement should not be ratified and in pointing out the many pitfalls and perils which may result from the signing of the contract. For if this agreement does not constitute a monopoly it constitutes something perilously near it, and at a time too when South Africa is just beginning to realise its iron and steel producing potentialities. The S.A. Iron and Steel Corporation is not the only enterprise in this country which proposes to manufacture iron and steel in South Africa from South African ores. There is the Newcastle Iron and Steel, Ltd., which is well on its way to actual production and for which company Mr. J. K. Eaton, the managing director, tendered evidence before the Select Committee, and according to the Minister for Railways the majority of the Committee were greatly impressed with Mr. Eaton's evidence. The Union Steel Corporation also gave evidence in support of their contract with the Government, which was entered into eight years ago and which it would appear has caused the Government considerable regret. Whether the warnings of some members of the House will materialise and will cause the Government in the fulness of time also to regret the new contract which it has entered into with the Pretoria Corporation remains to be seen. The chief criticism of the Government's action in this matter is that the Ministerialists have rushed through the House legislation in conflict with the findings of the Select Committee, which advocated that the Railway Administration should intimate publicly that it would be prepared to purchase its requirements in South Africa without binding the Administration to any one manufacturer. There are many other aspects of this matter which press for consideration and which will be dealt with at a later date. For the present the cardinal fact which dominates all others in connection with the establishment of an iron and steel industry is that Pretoria, that most favoured city of the Union, has secured a preference to the probable detriment of other centres which are endeavouring to inaugurate an iron age in this country. True, the iron is there. But the history of the steel industry in other countries seems to make it clear that it is often better policy to bring the iron ore to the coal fields than to transport coal to the iron mines. Certainly no other town in South Africa could expect such favoured treatment as Pretoria has secured, and the announcements that the S.A. Iron and Steel Corporation has to remit one-third of its profits in excess of 10 per cent. to the Railway Administration and that the public are to be invited to "put their money into the company" do not whitewash this business. Mr. Boydell has expressed the fear of a steel trust being set up in South Africa. It seems to us that a steel distrust already has been established.

Latest Metal Prices.

Messrs. H. A. Watson & Co., Liverpool, in their latest metal report (which is dated the 19th July), advise:—Standard copper: The market was extremely quiet for the week ending 9th July. There were few sellers at ruling rates, and values advanced to £91 5s. cash and £93 15s. three months on the 12th July, under a moderate demand which, however, did not last beyond a few days. The position again eased off, closing on 14th July at £90 cash and £92 10s. three months, and to-day's close is £90 5s. cash and £92 15s. three months, with an idle market. Closing quotations for manufactured copper are as follow: Strong sheets, £161 per ton; best select, £104 to £106 per ton; electrolytic, £106 to £111 per ton. The quotations for best select during the past fortnight have been: July 6th, £103; July 9th, £104; July 13th, £104; July 16th, £105. Standard tin: The market has risen steadily since the date of our last report, and the feeling has been decidedly better. After closing on 6th inst. at £246 5s. cash and £253 10s. three months, the price advanced on 8th inst. to £249 cash and £256 three months. Values jumped £9 10s. on 9th inst. on a good demand, and continued to rise from day to day, with only a slight reaction on 15th inst., closing strong on 16th inst. at £268 cash and £273 three months. To-day's close is £268 10s. cash and £273 three months, with a firm tone. Tin ores: Recent sales include parcels assaying from 56½ per cent. to 70 per cent. at prices ranging between £108 to £146 15s. Bolivian bars: Values nominally £238 to £258 per ton, according to quality. Sulphate of copper, £44 per ton f.o.b. nominal. Spelter advanced to £42 15s. to £44 on 12th, but has again eased off. To-day's close is £41 10s. to £43 5s. Lead: After reaching £34 15s. spot and £36 10s. forward on 13th inst. the market fell away to £33 10s. cash and £35 forward on 16th inst., but again recovered to-day, closing at £34 5s. cash and £35 15s. forward. Bismuth, 12s. 6d. per lb. nominal. Nickel, unchanged at £230 per ton. Quicksilver, £19 10s. to £20 10s. per bottle. Bar silver is quoted 52d. per oz. spot and 51½d. forward. Manganese ores unchanged at 4s. to 4s. 3d. per unit. Antimony: English regulus £60 to £63 per ton; Chinese, £49 to £52; ores nominal. Wolfram: Price remains about 27s. per unit for ore of 65 per cent. W.O.3.

SIEMENS BROTHERS

& CO., LIMITED

CABLES and WIRES	TELEGRAPHS	LINE MATERIALS
CABLE ACCESSORIES	TELEPHONES	FLUID CELLS
EBONITE	SIGNALLING APPARATUS	DRY CELLS

SIEMENS BROTHERS & Co., Ltd.,

WOOLWICH, LONDON, S.E.18.

ESTABLISHED 1858. OVER 4,000 EMPLOYEES

Telephone: City 6400 (7 Lines). Telegrams: "SIEMENS, WOOLWICH."

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street.
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:

A. J. G. SIMPSON, A.M.I.E.E.,

P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS."

THE WORKING COSTS PROBLEM.

Much Talk and Little Action—The Need for a Strenuous Effort—The City of Brains and the City of Unbeautiful Nonsense.

It has been written that Johannesburg contains more brains to the square inch than any other city on earth. After a good many years' experience of Johannesburg and the Reef we are, however, of the considered opinion that the expression of opinion quoted above is a gross libel on places like Aliwal North and Knysna, to say nothing of towns further afield in other parts of this intellectual universe.

A Temporary Salvation.

For months past the Rand has in the face of rising costs been battling for its very existence. The so-called premium on gold has stepped into the breach and temporarily saved the situation. But it is due to conditions outside the province of the brains of Johannesburg that our produce is selling at an enhanced price, and it should be remembered that Australia reaped the benefit of the new conditions born out of the War and the War's aftermath long before the Rand began to derive any profit therefrom. The gold premium is, after all, as Sir Evelyn Wallers told us a few months ago, only a passing phase of world finance and weld politik. It is a mere industrial trap which has been set to catch a financial dream and as a solution of our low grade mines problem, and indeed the problems of the whole industry it can never be regarded as lasting or satisfactory. Real and permanent relief can only come from other causes—from improved labouring efficiency, the elimination of waste, new inventions, improved organisation, and more intelligent and enterprising administration. It is not to be expected that any single wave of some wizard's wand can touch the industry and transmute all our disabilities into golden eggs.

The Problem of Costs.

But we can set our industrial house in order by means of diligent effort in a multitude of directions. We cannot dethrone the present enemy of progress, His Infamous Majesty the High Cost of Living, throughout the world, but in this country we should be able to largely free ourselves of the octopus which is throttling less favoured nations not blessed with the great natural resources of South Africa.

The pressing problem of our mines is the reduction of working costs, and in the face of this dire need the intellect of the Rand has sunk into a state of coma. No new inventions which will reduce expense or increase output or save life are coming along, or, if they are, they are being effectually strangled somewhere in the dark. We all bemoan the advance in costs, but nobody seems to make a real effort to reduce them. It does not say much for the brains of the Reef when employees argue that unemployment can be rectified by means of such a silly subterfuge as a five days' week. Neither is it a credit to the administration of the industry that its leaders have conceded nearly every demand for reduced hours and increased pay that has been thrust on them during the past year or two. When the Chamber of Mines gave in to the men in the early part of the year the price of gold was standing around £6 an ounce. The workers' demands were granted, gold fell in price, and a number of mines were compelled either to close down or to restrict operations. Gold is again rising, and we suppose that Labour will seek to gain some further advantage out of the temporary advance in price by pointing the strike pistol at the "brains" of the industry. But should gold decline in price again, as it undoubtedly will, there will certainly be no disposition on the part of Labour to concede anything which will counteract the reduction in the premium.

A Sliding Scale of Wages.

The only fair basis of settlement as between the mines and the miners, so long as our product has a fluctuating value, would be a scale of wages based on the price of gold—if gold rises, wages should rise proportionately; if gold falls, wages should decline in the same ratio. Such a sliding scale of payment has been adopted at Broken Hill, in Australia, and we do not see why it should not be adopted here.

A Native Training School.

There are other directions in which a betterment of the industry could be secured, but the intellect of Johannesburg does not seem to consider them worthy of notice. Some months ago, for instance, we suggested the establishment of a mine natives' training school. We advocated the establishment of training schools in centres from which large supplies of native labour are derived. Why should the Rand import the raw article in its labour supplies when by the establishment of native mining schools the labourers could be taught the rudimentary principles of underground work and particularly of "Safety First" before they leave their homes? Such a scheme certainly appears practicable, and if it were carried out successfully a selection could be made in the native territories and the new recruits would have a lesser probationary period to serve on arrival on the Rand. It would appear to be good business from the point of view of the industry as well as of the native, and certainly it seems worthy of investigation; but so far as we know there has been no move in this direction either by the Government or the leaders of the mining industry.

—And Salvage.

Then again consider the question of salvage on the Reef. Everyone knows that a vast amount of material of all kinds goes to waste on and in our mines. Old cocopans are discarded and left to rust away; old rails, picks and shovels lie unremembered in underground workings or at surface; dynamite and candle boxes are not always retrieved. There is, in short, a vast accumulation of material of all kinds which is now going to waste and which could be worked up again as scrap or utilised in other ways. During the Great War the belligerent armies maintained efficient salvage corps on all the principal fronts and the value of the material which they redeemed can be computed only in millions. A salvage corps on the Rand would repay the cost of its establishment and maintenance a thousandfold, yet when such a suggestion was made to a leading mine manager some little time ago he merely retorted, "This is a mine and not a battlefield."

The City of Unbeautiful Nonsense.

So long as we have high officials who bury their heads in the sands of conservative ignorance, and so long as we shriek about high working costs and make no real effort to reduce them the industry will continue to work at a huge disadvantage. There is too much talk on the Rand to-day and not enough action. We are too fond of attempting to kill the bogey of high costs with our mouths, and that is not a method which is creditable to the town which is supposed to have more brains to the square inch than any other place on earth. It is more the method of a city of unbeautiful nonsense.

New Kleinfontein.

Appended are details of the operations on the New Kleinfontein Company's property for the month of July: Stamps, 200; days, 29; tube mills, 4; tons milled, 49,160; gold recovered, 14,812 fine ozs.; value, less cost of realisation, £75,894; profit, £14,672; working costs per ton (excluding development), £1 5s. 2d.; development to working costs per ton, 11d.; total working costs per ton, £1 6s. 1d.; capital expenditure, £14; cost of pumping and closing down Apex section, £672. The revenue for the month is calculated at £5 5s. per fine oz.

HADFIELDS Ltd.

East Hecla and Hecla Works, Sheffield, England.

Workmen employed during the war, over 15,000.
Works area 200 Acres.

HADFIELD'S SPECIAL FORGED STEEL BALLS FOR BALL AND TUBE MILLS

MINING REQUISITES
of all kinds.

ERA
Trade Mark.

Sole Makers of HADFIELD'S PATENT
MANGANESE STEEL
The supreme material for the wearing parts of Stone Breaking and Ore Crushing Machinery, Tramway Track Work, etc.

Complete Stone Breaking and Ore Crushing Plants

Head Office for South Africa:
46 & 47, CULLINAN BUILDINGS,
JOHANNESBURG.
'Phone 5900 Tel. Add: "Hecla."

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

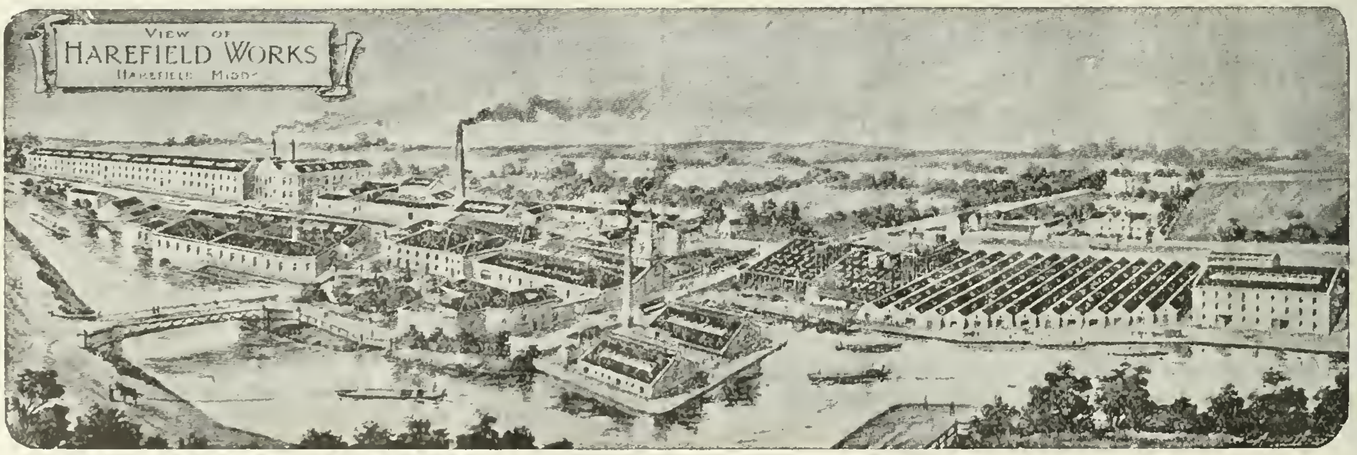
Natal Agents:
THOMAS BARLOW & SONS (S.A.) Limited
Smith Street, Durban.

United Asbestos African Agency,

LIMITED.

Telephone No, 345, Central. 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR
BELL'S UNITED ASBESTOS CO., LTD.
(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD).



VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

"GLADIATOR" ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of "Gladiator" Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

ALONG THE REEF.

A Digest of the Latest News from Our Gold Mines——The Shutes of the Far East—Modder " B " Training School—The C.M.R's Windfall.

Sure as the pendulum of time, development exposures on the great Far East Rand gold field swing backwards and forwards between the zeros of payability and unpayability. As the years go by and shafts, drives, winzes and raises increase the exploratory footage, and as each successive measurement and recalculation enables a more complete segregation of values to be made, the distribution of the gold content of the Far East Rand banket beds becomes better understood. The " lay " and magnitude of the pay shutes can now be accurately determined over very large areas, but there is still an immense portion of the field which is unatlassed on the assay plans. Thousands of claims have still a purely presumptive value, and there are whole properties—New States, for example, and further afield East Rand Mining Estates and Spaarwater—which are unknown quantities. Past experience and the theory of probabilities justify one in the assumption that at least the majority of these propositions will be profitably worked sooner or later. But it seems unwise to expect them all to be jewel boxes. The sum total of our knowledge of the dimensions and values of the Far East Rand shutes has recently been compressed into an exceedingly informative value plan of the Far East Rand gold field which has been compiled by an official of one of the big houses on behalf of his employers. In the hands of an astute financier that compilation should easily prove the open sesame to further fortunes. But it is hardly likely that the plan will be published, for several reasons. Even as it is the diagram has huge blanks, and to correlate all the zones and accurately to infer their continuities would require the brains of a jig-saw geologist of superhuman insight. It is strange that after decades of work and debate, and whole volumes of expert theory and fact, no one yet has solved the problem of just why exactly there is a superfluity of precious metal in one reef section and a paucity of gold in another section of apparently identical appearance and mineralogical constitution. Not even Mr. Bleloch has discovered the element or phenomenon which determines this distribution of content, and Mr. Blelech, whatever the critics may say of him, is the most energetic and imaginative of our seers of the hidden secrets of the Rand's strata.

The Modder B. Training School.

Completion of the new miners' training school at the Modderfontein B. mine has been delayed by a variety of factors, but it is now probable that the establishment will be ready in the near future. It is understood that the school at Florida will then be closed and the Modder B. and Wolhuter will thus be the two practical universities of mining on the Reef. One gathers that the site of tho Modder B. school might have been better chosen; it is unnecessarily near the sand dump. All the same it should prove a valuable factor in the training of the young idea in the ethics of hanging walls and breaking rock. But it seems to us that what is specially necessary in any curriculum for Rand miners is an elementary knowledge of the A.B.C. of industrial economics and a realisation of the simple fact that if a mine can't pay on six days' work a week it is not likely to do so on a basis of five days' working in the seven.

A Windfall for the Consolidated Main Reef.

The Consolidated Main Reef has recently had some highly satisfactory development exposures which have given that company a decided windfall in additional ore reserves of more than average payability. The " C.M.R." is situated in an unfashionable area of the Witwatersrand, and were its claims out on the popular Far East Rand the shares would be standing at a very substantial premium in view of these recent exposures.

A New View of the No. 4 Shaft of Government Areas.

THE GOLD BELOW "JOHANNESBURG."

Is there a New Field Underlying the Main Reef?—Mr. Scott Alexander's Time-worn Theories—A Plea for a Fair Test—Reefs and Streets.

For a considerable number of years Mr. Scott Alexander has been preaching the doctrine of millions below our Municipal buildings, millions beneath our very feet. Mr. Bleloch, too, is a confirmed believer in the value of the beds which underlie the town of Johannesburg. If these theories were proved to be true Johannesburg would indeed be a Golden City. According to Mr. Scott Alexander, even our unsightly railway station is built on a treasure house. But do these beliefs rest on any real substrata of facts?

"Always Chasing Rainbows?"

Many people, so we understand, are inclined to regard the Rand Stratigraphist as an estimable gentleman who is always chasing rainbows—rainbows of an auriferous type and millionaire splendour. But, at any rate, why not put his theories to a practical test? The possible stake is so great that it might be worth while to put a long exploratory cross-cut in to the north from one of our Central Rand outcrops, or else to test the strata underlying the Main Reef Series by a number of inclined boreholes. In the accompanying interesting letter Mr. Scott Alexander has remarshalled his facts in support of the belief that Johannesburg is underlain by numerous auriferous banket beds, and readers who are not fully conversant with his reading of Rand stratigraphy will no doubt find much of interest in this attractive solution of the get-rich-quickly problem.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—Well may Johannesburg be called "The World's Golden City" considering it is built on several miles of the most valuable series of reefs of the Witwatersrand five-mile-thick geological age.

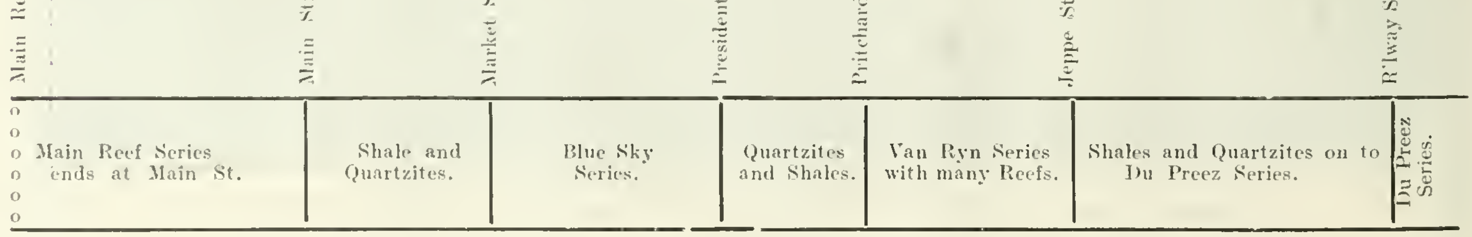
Some years back you were good enough to publish a letter and plan of mine giving these series stratigraphically according to the streets of the town running parallel to the strike of Main Reef, viz., east and west. I do not think at that time I gave it quite as exactly as I can to-day, for since then many deep excavations have been made under some of our palatial buildings which has amounted to prospecting, by absolutely defining the widths of the most important series of reefs, standing as they do nearly vertical at outcrop, bounded on the north and south by their shale beds and sandstone layers of uneconomic value, as far as I am aware, but which are pointers nevertheless to the main bodies of quartzites carrying the pebble beds, or reefs so-called, which from their economic value gave names to the series in the early days, and have clung to them to the present time, whether they be found in Klerksdorp, Heidelberg, Free State, etc. I was once twitted by one of our fossiliferous geologists from the Northern Hemisphere that I was a colour geologist—so mote it be, for a colour geologist I am on an age minus fossils, and much good may they do those who have had the grind of studying them, for the knowledge is like the fifth wheel to a coach to a student in this country. The first thing a geologist has to do here is to study the colour of his sandstones and quartzites at surface, and then search for the pay reefs afterwards. For example Main Reef series sandstones are purple, Blue Sky pink—not as the name denotes—Van Ryn coarse white grits principally, and so on. As before remarked, each auriferous series is separated one from the other by shale beds and beds of sandstone, which also have to be studied for their individual characteristics as pointers, hence Rand stratigraphy is not as simple as some folk imagine, and the fact of a man being a Doctor of Geology, made in Germany or elsewhere, gives him no advantage, stratigraphically, over an observant Boer, for instance, who has tramped the upturned edges of this age all his life, and knows his sandstones by their colour, and even the smell thereof. However, to return to our muttons, let us take a tight central section of the Rand along Rissik Street from the Wemmer G.M. Co. to Hospital Hill shales, some 7,000 feet away.

In Main Street Main Reef series ends up on a wide bed of shale, with a payable reef on the contact, next comes (going south) the rich Coronation Reef, then the three Gaiter Reefs (named after my gaiters of the early days), the North Reef, Pyritic Leader, Main Reef, Main Reef Leader and South Reef, etc. The above section is fairly well defined at "Knights" on the East Rand, but for a perfect-naked section we must go further afield to "Eden Kop," in the Heidelberg District, where in the years 1904-1905 (circa) much money was lost to gather the rich reef, so they say, and a great geological controversy took place at the time as to its particular horizon. At first sight I proclaimed it as underlying Main Reef, but the information fell upon deaf ears—even unto to-day. Leaving Main Reef series and going north, we come upon the Blue Sky, alias Molyneux series, in the Market Square, and its north reef, or Blue Sky reef, lying on finely laminated shale; trends the length of President Street, where it has been uncovered several times. One block more and we are in Pritchard Street, where commences the Van Ryn series, as indexed at Langermen's Kop, in Bezuidenhout Valley, and that ends up on its pipe clay and shale, etc., in Jeppe Street. Next in order comes the once famous Du Preez series, under the Railway Station, about, but as the Bezuidenhout Valley volcanic rift extends that far I am afraid there is not much left of its outcrop, which is, however, well defined on Langlaagte Estate, some two or three miles further west. In the north of the Wanderers Ground is the Government Reef series, with the Promise and Alexandra Estate reefs underlying, until we step on to the Hospital Hill shales, where ends the section through the town. A traverse from Main Reef on the Consolidated Langlaagte G.M. Co. gives the same section with Du Preez and all its underlying series exposed, as the town has not yet reached so far west. I have always thought it such a pity that that company does not put down a few shallow angle bore holes north of their Main Reef to prove the undoubted value of the reefs which lie beneath the few feet of surface soil on the dividing ground between it and the Du Preez series, which lies north of the railway. Had the Kruger Government in the early days known the importance of the diamond drill Johannesburg would never have been built where it is, and the untold millions it covers locked up for good and all. Reckless covering up of valuable mining ground north of Main Reef series is going on gaily even to-day, and the Geological Survey Department, which should be the adviser to the Government on such matters, does nothing to prevent it. Thank goodness the Rand is not the only pebble on the Union's auriferous beach, or the pessimists' constant wail that one day our gold mines will come to an end would prove true.—I am, etc.,

SCOTT ALEXANDER,
"Rand Stratigraphist."

Johannesburg,
August 9, 1920.

SECTION THROUGH THE TOWN OF JOHANNESBURG ALONG RISSIK STREET TO DU PREEZ SERIES.



Scale. 480 feet to inch

August, 10, 1920.

SCOTT ALEXANDER,
"Rand Stratigraphist."

THE COMING OIL BOOM.

How Our South African Enterprises are Progressing—The Bituminous Shales of Wakkerstroom—African Oil Corporation—More Negotiations—The Geluk Company's Acquisitions.

The desire of the United States Government to secure rights for her citizens equal to those of Great Britain in respect of oil resources in Mandatary territories and particularly in Mesopotamia is merely another expression of alarm at the rapidity with which the American oil wells are becoming exhausted.

Exhaustion of Wells in the States.

There appears to be little reason to doubt that the manufacture of oil from oil-shale is destined, in the not very distant future, to assume in the United States a more prominent place than it now occupies. The consumption of mineral oil and its derivatives is increasing rapidly. In the automobile industry alone it was estimated that there would be 7,602,000 automobiles, either passenger or commercial, officially listed in the United States on December 31st, 1919, which would be an increase of about one and a quarter million above those of 1918. The number of motor-trucks is estimated between 600,000 and 700,000.

The use of oil as fuel for ships is also rapidly increasing. The United States Shipping Board has abandoned the coal-burning ship, and 636 out of 720 vessels under construction for the Emergency Fleet Corporation will be oil burning. The former German liners are being converted to oil-fuel consumption. The fleet of the Atlantic, Gulf, and West Indies Steamship Company totalling 274,461 deadweight tons is being modified so as to use oil-bunkers. The United States Government has quite recently acquired or opened oil-fuel storage centres for its Navy at Panama, St. Thomas, Azores, Biserta and Manila, and we recently read in the local press that the Aquitania consumed 7,000 tons (!) of oil on her trip across the Atlantic.

A report, issued in the latter part of May, 1918, by the United States Bureau of Mines, stated that the underground reserves of the United States are 40 per cent. exhausted, while production from drilling has probably nearly attained its maximum. This view is corroborated by a report issued this year by the Smithsonian Institute, entitled "The Energy Resources of the United States: A Field for Reconstruction," which calculates, basing its figures on a population of 100,000,000 that the per capita production of petroleum in 1917 was 3·4 barrels, the amount mined from 1859 to 1917 was 42 barrels, and that the underground reserve, available under present methods of mining, was 70 barrels in 1918. It is estimated in the report of the Bureau of Mines, of May, 1919, that the demand will reach 800,000,000 barrels per annum by 1927, and all known, and probably all existing, underground reserves in the United States will be exhausted by 1928.

Salvation by Shales.

The more one reflects on this problem of oil shortage throughout the world the more does one become convinced that the only probable solution of the question in the absence of new gusher discoveries, which cannot be safely reckoned on, lies in the direction of the exploitation on a large scale of the bituminous shale measures, more commonly known as oil shales of the continents.

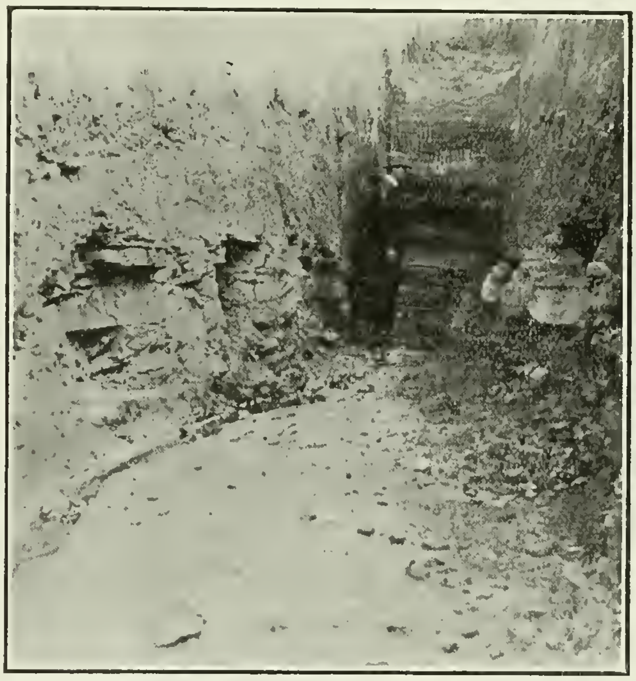
In North America the oil-bearing shales will serve to take the place, in due time, of the oil wells. The United States Government has taken steps to reserve for naval purposes about 132,000 acres of shale country, of which 15,410 acres are in Colorado and 86,584 in Utah.

South Africa's Interest.

This question of oil shale development vitally affects South Africa. Although according to Mr. Cunninghame Craig, who investigated the oil-bearing possibilities of South Africa on behalf of the Union Government, the outlook for the discovery of oil wells in the sub-continent is not a good one, the prospects of establishing a successful oil shale industry are decidedly attractive. South Africa is literally thirsty for oil. She cannot obtain all the supplies of lubricating and heavy oils she requires, and in so far as motor spirit is concerned the position is acute. The shortage has steadily grown worse during the past twelve months, and side by side with this must be placed the fact that during the past year the first serious effort to develop an oil shale industry in South Africa has been inaugurated in the Wakkerstroom district of the South-eastern Transvaal by the African Oil Corporation and to a lesser degree by the Geluk and Wakkerstroom Oil Companies.

African Oil and the Yanks.

The first-named company has done a great deal of development work. Seven drives have been pushed into the hills and have disclosed very large tonnages of shale carrying a high oil content. In our issue of March 6th last we published a most informative report of the consulting engineer on the African Oil Corporation's properties. It may be recalled that Mr. Mills Davies arrived at a calculation of about fourteen million pounds' worth of crude oil contents in the area already developed and sampled, and this has since been increased. Over and above this there are in the Wakkerstroom district millions of tons of oil shale area not as yet exploited, but of tremendous presumptive value. This is a most important industrial and economic factor; it is indeed probable that it will be a factor of paramount value to this country in the course of the next few years. It is not surprising to learn that the African Oil Corporation's proposition is now the subject of tentative negotiations, in which a local house is interested. And rumour has it, too, that an American firm is anxious to investigate these properties.



One of the Drives in Bituminous Shale, African Oil Corporation, Ltd., Wakkerstroom.

Geluk and Wakkerstroom.

As to Geluk Oils, Ltd., we understand this company has acquired valuable coal and oil shale properties, particulars of which will be published shortly. And at the Wakkerstroom Oil Company's properties extensive boring is in progress.

An Oil Boom Coming?

Meanwhile the oil enterprises of the world are pregnant with reconstructional activities, mergers, and rumours of vast amalgamations and new and novel spheres of action.

In Stock Exchange circles there is a confident belief that an oil boom is impending, and when one considers the growing immensity of the world's demands it seems highly probable that the next big convulsion in stocks and shares is likely to rest on an oliferous basis. A period of speculative intensity similar to that which agitated rubber shares a few years ago is predicted, and should such a boom materialise it is reasonably assured that South African and Madagascar enterprises will have their share of the oil boom.

PERSONAL.

The Governor-General and Viscountess Buxton will leave Capetown by the "Saxon" on Friday, August 27. Their Excellencies will be accompanied to England by Major and the Hon. Mrs. Fitzroy, Captain Maryon Wilson, A.D.C.,

* * * *

Mr. J. C. Collings, Stud. Inst. M.M., has left England for Rhodesia.

* * * *

Mr. L. G. Hutchison, M.Inst.M.M., has left England for Rhodesia.

* * * *

Mr. G. A. Denny, M.Inst.M.M., is leaving England for South Africa and Rhodesia.

* * * *

Sir Abe Bailey has sailed for England, and on the same boat are Sir Edgar Walton and his bride.

* * * *

Mr. B. T. Bourke, one of the company's directors, has been on a visit to the Transvaal G.M. Estates.

* * * *

Major Clem D. Webb, M.C., managing director of the *South African Mining and Engineering Journal*, is on a brief visit to the Northern Transvaal, and Mr. S. R. Potter, editor of this journal, is enjoying a short holiday in Durban.

* * * *

Cabled instructions were received during the week from England that the body of the late Marquess of Queensberry, who was a director of Emerald Diamonds, Ltd., is to be conveyed overseas for burial.

STURROCK & CO.

GENERAL, MINING AND RAILWAY
ENGINEERS AND CONTRACTORS

beg to announce that in future this business will be carried on under the title:—

STURROCK
(SOUTH AFRICA) LTD.

to whom all communications should be sent.

OFFICES:—
Barsdorf's Buildings,
MARSHALL STREET,
JOHANNESBURG.

P.O. Box 2863. Telegrams: "Delta." 'Phones 2596.

ANNOUNCING THE OPENING OF
BARIMAR
IN
SOUTH AFRICA

Following the policy of putting Barimar Branch Factories around the world, the Directors have pleasure in announcing the opening of the third Barimar Factory out of England—

BARIMAR (SOUTH AFRICA) LTD.,
Head Office—BARSDORF'S BUILDINGS, JOHANNESBURG.

Barimar (South Africa), Ltd., is completely equipped with the latest appliances for welding all metals, and with the most efficient machinery for completing repairs.

Highly skilled welders, trained in Barimar London Factories, control the technical side of Scientific Welding in the South African Factory, and these men will be able to produce the same grade of work that has made Barimar Scientific Welding famous throughout the Motor and Engineering Trades.

To SEND REPAIRS TO BARIMAR. We must see the parts before we can estimate or advise upon repair. Send them to us. First remove all fittings, then attach a label bearing your name and address. Please pay carriage. Post a letter to us advising despatch and give full instructions.

BARIMAR (S.A.) LTD.,
Ferreira Industrial Sites,
SAUER STREET SOUTH, JOHANNESBURG.
Telegrams "Barimar." 'Phone 2596. Box 2863.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK (S.A.) LTD.,
BARSDORF'S BLDGS.,

Telegrams: "BRITFLOT." Phones 2596-7.

BASE METALS.

Goabeb Tins: A New Flotation with Good Prospects—Opening up Iron Ore near Dundee—Copper and Tin Statistics for June.

The latest base metal flotation in the sub-continent is "The Goabeb Tins, Ltd.," which has been formed to acquire rights over some valuable cassiterite claims in the Karibib district of the South West African Protectorate. The nominal capital of the company is £6,000, in 12,000 shares of 10s. each. The working capital is £5,000, and the reserve capital £1,000. The directors of the company are: Ernest Walter Matthews, George Adolph Behr, Alfred Percy Lloyd, George Fletcher Moore. Bankers, The National Bank of South Africa, Ltd. Solicitors, Messrs. Saner & Nathan, Aegis Buildings, Johannesburg. Auditor, J. S. Richardson, Esq., 151 Stock Exchange, Johannesburg. Secretary and offices, T. E. Duckles, Esq., 119-120 Stock Exchange, Johannesburg. Some very high-grade cassiterite has been won from this proposition and assays made by Sydney Bilbrough & Co. give values ranging from 65·8 to 71·4% of tin. We give two photographs of this proposition, which promises to have a successful future. The Goabeb Tin property is favourably circumstanced in regard to cheap working and already tin having a value which represents a substantial portion of the capital of the company has been proved on the claims.

Opening up Cassiterite on the Goabeb Tin Property

Exploratory Work, Goabeb Tins

Geological Features.

Semi-desert conditions prevail in this part of German South-West Africa on account of the limited rainfall. The result is a very striking one: huge bare mountains rise from low undulating flats, the latter consisting of mica schists and quartzites, the former for the greater part of granite. Low, rounded granite bosses such as are found in Central South Africa, more especially in the Transvaal and the Orange Free State, are not found here. The masses formed by this rock take the shape of steep, bold domes surrounded at their base by accumulations of large fragments and boulders of granite, detached from the main mass and slid or rolled down the bare rock surfaces. Away from the mountains, smaller peaks protrude above the surrounding undulating country; they are remnants of huge masses, once connected with the main mountains, and witnesses of the intensity of the denuding forces at work even in dry climates. These forces are insolation and deflation assisted during short periods by erosion. The heating of the rock by the rays of the sun beating down through an atmosphere free of moisture, is followed by a rapid cooling during the nights. These large and rapid changes in temperature cause the rock to scale off in large slabs, which slide down the slopes. This process is called "insolation." All rocks, even in dry climates, contain water, which attacks and destroys the minerals forming the rock, and in case of a granite, especially felspar and mica. The rock becomes disintegrated and crumbles away, the fine, minute particles (dust) are carried miles away by the winds; the larger grains form the sand so abundant in these parts and often accumulated into dunes. This action of the wind is known as "deflation." In addition the wind, carrying with it particles of sand and beating against the rocks, causes a grinding action which wears away the softer parts more rapidly than the harder parts and causes the rock surfaces to become pitted and honey-combed (corrosion). Heavy and sudden downpours during the rainy seasons, further help to remove the accumulated dust, sand and rock fragments. The river-beds consist of deep accumulations of sand, which becomes more abundant as the rainless coastal region is reached. Here the surface is covered in places with a thick layer of sand, heaped up into dunes. Not all the mountains consist of granite, some are capped by series of sedimentary beds and crystalline schists (mostly quartzite); the different layers, with their different colorations come out very well on the bare mountain slopes. The origin of the tin found in the Goabeb claims must be looked for in the granite of the Erongo Mountain. This granite-complex intruded into the crystalline schists in the shape of large bosses, intrusions of pegmatite, dykes of fine grained granite and lodes of pegmatite and greisen. Most of the granite and pegmatite dykes have been altered into greisen, a rock consisting of quartz, white or grey mica, and often tourmaline, sometimes with the addition of topaz and other associates of tin. The outlook for this proposition appears to be a good one. The capital is small, the claims undoubtedly contain a large quantity of tin which can be worked at a substantial profit, and with the prospect of the price of the metal advancing in the near future the Goabeb Company should be able to pay good dividends.

Hematite Deposit near Dundee, property of the Newcastle Iron and Steel Co'y. The Ore assays 62-65 per cent of Iron.

* * * *

In the statistics of mineral production issued by the Union Department of Mines for June, it is shown that sales and shipments of copper for that month were 399·6 tons of a value of £22,405, and tin 115·7 tons of a value of £25,962.

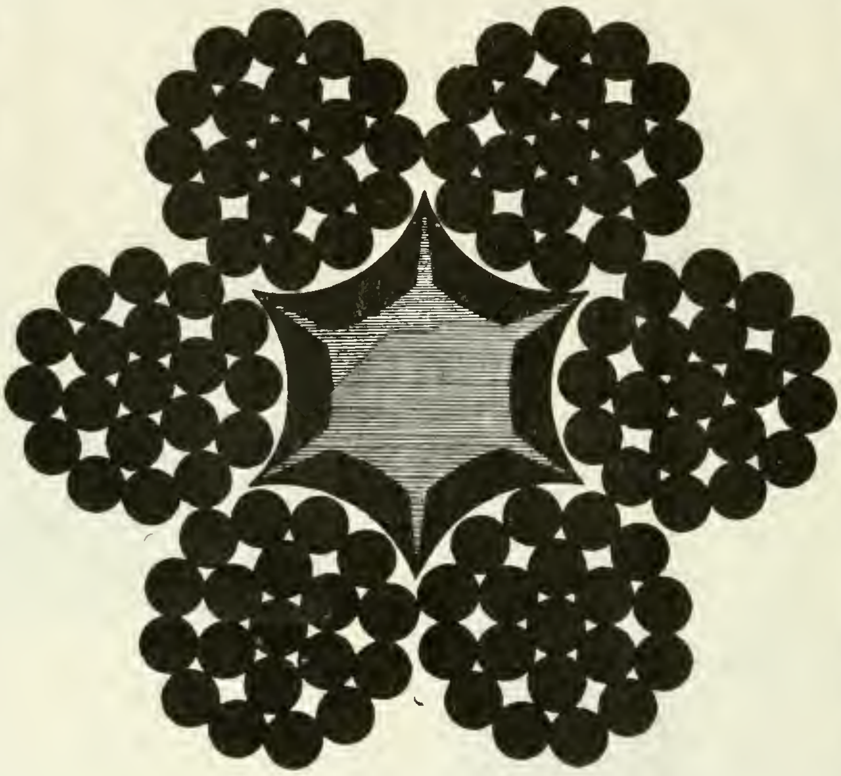
* * * *

The Newcastle Iron and Steel, Ltd., are pushing ahead with construction of their blast furnace and the company has also taken important steps with a view to cultivating an export trade. Our photograph illustrates the progress of work at one of the company's high-grade iron ore propositions in the Dundee district.

CRAVEN & SPEEDING
BROS.
SUNDERLAND
ENGLAND.

Sole Agents for Transvaal and Natal:

CLYDE TRADING Company, Ltd.,
Howard Buildings,
C o MAIN & LOVEDAY STREETS,
Box 457. :: JOHANNESBURG. :: 'Phone 5964.



A record obtained from a "WESTGARTH PATENT CORE" ROPE used for endless haulage—

2,000 yards 4½in. cir. put to work on 24th Oct., 1914.
Taken out of work 11th June, 1917.
Coal Hauled during the period, 1,110,000 tons.

SOLE MANUFACTURERS.
"WESTGARTH PATENT CORE" WIRE ROPE.

OUR EXPANDING COAL TRADE.

Starved for Transport—Congestion of Shipping at Durban—Acute Scarcity of Coal in Other Countries—Why not Exchange Coal for Wheat ?

The Natal coal trade continues to be starved on account of inadequate transport facilities for the despatch of the output of the collieries to the coast. If only Providence had located Natal's coal fields at and around Durban, or had in some other way eliminated the South African Railways factor from the economic cosmos of the Garden Colony, the pits of Natal instead of selling a paltry 275,000 tons a month would easily dispose of half-a-million tons. The Railways are doing their best. They are handicapped by truck shortage and insufficient steaming power in their locomotive strength. The whole country is shrieking for increased railway facilities, and Sir William Hoy's loaf is wholly inadequate to go round. Natal with its single line curving and twisting over and around steep gradients can never satisfy the coastal demands. Duplication of certain sections and arrival of new locos and rolling stock may greatly assist the position, but one is forced to the conclusion that only electrification of the new line and its deviations, or, better still, its complete duplication, or else the building of a new coal-carrying railway from Vryheid to the north coast will really enable the Natal collieries to reap the rich harvest which is going a-begging.

An Investigation in loco.

Within the past few days we have been at some pains to investigate the coaling position at Durban on the spot, and there can be no doubt that on account of coal shortage the harbour congestion at Port Natal is acute. This can best be realised by the fact that the "City of Madrid," the "Franz Wilke," "Largo Law," "Bosphorus," and "Shropshire" were all at the outer anchorage the other day. On inquiries being made, it was ascertained that they would have to stay outside the harbour until certain boats left, making place for them. In several cases along the wharfside boats were double banked, and at Congella, and the moorings, with the exception of No. 2, temporarily out of commission. The majority of the new arrivals are for bunker coal, a fact which will bring home more vividly to the mind the inestimable value the extension of the present appliances at the Bluff-side will be. Ships were waiting for 101,000 tons of cargo coal, and 17,000 tons of bunker coal. Only 10,000 tons were in hand, and of this 5,000 tons of Wallsend and Newcastle coal were for the "Largo Law." It is the old story of insufficient railway facilities to cope with the demand.

How we Might Trade with the Argentine.

It is of course most unfortunate that South Africa, through lack of railway facilities, is unable to supply other countries which are woefully short of coal supplies with this very essential commodity, which we can produce in unlimited quantities but which we can only export in comparatively small amounts. It is unfortunate both from the viewpoints of South Africa and of the coal-starved nations. We read that in the Argentine wheat is being burned by the locomotives of the great South American Republic. And in Portugal the people are burning floor boards because they are unable to secure coal. There seems to be something wrong in the economic cosmos when one country whose seaboard fronts our own is compelled to consume wheat in the fire boxes of its engines whilst we in South Africa would welcome that wheat and willingly exchange coal for it. Surely it should be possible for the two countries to effect an exchange of these commodities, and surely this fact in itself constitutes the strongest of arguments in favour of an extension of the Union's fleet, which now we believe has assumed the tremendous dimensions of three ships.

The By-Product Industry in Natal: Works of the Natal Ammonium Company.

June Coal Statistics.

Meanwhile it is of interest to note the figures of coal outputting activity during June as disclosed by the Mines Department statistics. A summary of these shows the following:

PROVINCE.	No. of Collieries Producing.	Total Coal Sold. Tons.	Total Value Realised at Pit's Mouth. £	Value per Ton at Pit's Mouth. s.	d.
Transvaal—					
Springs-Brakpan Area	4	45,507	13,014	5	8·63
Middelburg Area ...	19	488,401	114,230	5	10·87
Other Areas	13	90,022	24,437	5	5·45
Total	36	623,930	181,681	5	9·89
Cape	5	455	307	13	5·93
Orange Free State ...	4	80,096	23,040	5	9·04
Natal	26	275,496	171,904	12	5·76
Union of South Africa ...	71	979,977	376,932	—	

Particulars of the by-products industry were: Coal converted into by-products, 8,619 tons. By-products produced: Coke, 1,821 tons; tar, 4,135 gallons; sulphate of ammonia, 259,000 tons.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%.

Overseers.—25 Certificates out of a total of 37 in South Africa in 1920. Our passes during a recent 6 months (1919/20) were 95%.

Surveyors—Our new class obtained the only Certificate in South Africa, March, 1920, Examination. Over 60 successful candidates have received sectional or other tuition from us.

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

P.O. Box 3807.

ROCKWOOD PRESSED STEEL UNIONS

H. ALERS HANKEY - - - Sole Agent.

PROGRESS OF THE "SAFETY FIRST" MOVEMENT.

A Review of Recent Activities by J. F. Bilbrough, Managing Secretary Rand Mutual Assurance Company—Specially Written for the "S.A. Mining and Engineering Journal."

The Prevention of Accidents Committee of the Rand Mutual Assurance Company, Ltd., is an organisation that has justified its existence ever since it came into being. Its labours are being rewarded. The death-rate for the Witwatersrand gold mines, which in 1913 was 3·89 per 1,000 for both Europeans and natives, has been gradually reduced from year to year to 2·43 per 1,000 for the year 1919, which is a record low rate for these fields—a saving of 318 lives on the 1913 figures. The Committee is ably presided over by Mr. John Munro as chairman and consists of representatives of the Government Mines Department, headed by Sir Robert N. Kotzé, Government Mining Engineer, the Transvaal Chamber of Mines, the Committee of Consulting Engineers, Association of Mine Managers, South African Institute of Electrical Engineers, and medical men. The activities of the Committee may be divided into three classes:

(1) The prevention of accidents.

(2) The alleviation of suffering following an accident, generally known as "First Aid."

(3) The health and welfare of the workers on the mines.

"Safety First" Bulletins as issued to the Mines.

Under the first heading "The prevention of accidents," the Committee's propaganda are conveyed to the men on the mines through the medium of the well-known publication, *The Reef*, some 8,500 copies of which are circulated monthly gratis among employees on the mines. Bulletins are issued regularly, both to whites and natives, drawing attention to dangerous practices. Mining Regulations have been abridged and published in both English and Dutch. A booklet entitled "Hints on First Aid for Miners" has been published and some thousands of copies distributed in English and Dutch. A booklet, "Miner's Companion in Zulu and Kitchen Kaffir," has been compiled in order to assist the miner in making himself understood to natives entrusted to his care. Notices and posters are being regularly issued in native languages warning natives against unforeseen dangers. Safety devices receive the Committee's careful consideration and useful ones are recommended for adoption by the mines. Workmen's Committees have been constituted on the mines, and to them great credit is due for the good work done Safety competitions for underground officials are being held annually. The alleviation of pain after an accident has occurred is a problem which the Prevention of Accidents Committee has taken up, and has given its assistance to the South African Red Cross Society, which for many years has been engaged on this work. The immediate treatment of septic wounds has been "pegged away" at by the Committee through the medium of *The Reef* and Safety Bulletins, with satisfactory results. The ambulance competitions of the South African Red Cross Society have been encouraged and suggestions have been and are being made with regard to the general improvement of first aid conditions on the mines. "The Health and Welfare" of the workers is another problem to which the Committee has devoted its attention, it being realised that health is essential not only to efficiency but also to safety. Physical culture classes were formed on the mines and were successful for a time, and inter-mine competitions in cricket, football, bowls, golf, tennis and other athletic sports have been successfully organised.

The "Safety First" Shield: Present Holders, Geldenhuis Deep West Section.

Lardine, Limited

(Incorporated in the Transvaal.)

DECLARATION OF DIVIDEND NO. 2.

A Dividend of 7½ per cent. (1s. 6d. per share) has been declared by the Board for the period ending 30th June, 1920 (three months) payable to shareholders registered in the books of the Company at the close of business on 19th August, 1920.

The Transfer Books will be closed from the 20th to 31st August, 1920, both days inclusive.

By Order of the Board,
LARDINE, LIMITED.
C. H. NORMAN, Acting Secretary.

Head Office: Germiston North.
P.O. Box 202, Germiston. 20th July, 1920.

FURNACES

For all purposes.

50% Saving in Fuel.

COAL, COKE, OIL, GAS, WOOD, etc.

THE INCANDESCENT HEAT CO., LTD.,
SMETHWICK, BIRMINGHAM, ENG.

JULY OUTPUT AND PROFIT.

A Big All-round Advance—Effect of Rise in Gold Premium and Decreased Realisation Charges—Profits Approximate to a Million—No Losses Recorded—Efficiency Improving—Native Labour the Fly in the Ointment.

THERE was a large increase in the output of the gold mines last month, and a still more substantial improvement in profits consequent on the advance in the price of gold and reduction of bank realisation charges. During the past month the Transvaal mines produced 736,699 ounces of fine gold, as against 715,957 ounces in the shorter month of June, an increase of 20,142 ounces. The value of the July output, taken at £5 5s. per ounce, less realisation charges, is £3,861,420, as against £3,583,395 for June (£5 2s. 6d. per ounce, less realisation charges), an increase of £281,025. The realisation charges in June were 7s. per fine ounce; in July, owing to the reduction in the bank rate, they fell to 1s. 6d. per fine ounce. The output totals for the Witwatersrand and outside districts are as follow:

Witwatersrand.

	Ozs.
July	718,521
June	699,188
Increase	19,322

Outside Districts.

July	17,578
June	16,758
Increase	820

Grand Total.

	Ozs.	Value.
July	736,099	£3,861,420
June ...	715,957	£3,583,395
Increase	20,142	£281,025

Among the Witwatersrand companies the following increases are shown: Government Areas, 1,114 ozs.; Crown Mines, 3,165 ozs.; City Deep, 2,886 ozs.; Van Ryn Deep, 2,375 ozs.; Springs Mines, 2,349 ozs.; Modderfontein B., 2,125 ozs.; Brakpan Mines, 2,105 ozs. The improved results on some of the low-grade mines are due not only to the increased price of gold and the reduction in the bank rate of exchange, but also to the better efficiency given by the employees during the month, and this is particularly so in the case of the Aurora West and New Goch mines.

The following table shows how the value of gold and realisation charges have affected the mines for the first seven months of this year:

	Price of gold per fine oz.	Realisation charges per fine oz.	Net value per fine oz.
January	£5 7 6	1/0	£5 6 6
February	5 10 6	5/0	5 5 5
March	5 5 0	6/3	4 18 9
April	5 2 6	7/6	4 15 0
May	5 5 0	8/9	4 16 3
June	5 2 6	7/0	4 15 6
July	5 5 0	1/6	5 3 6

COMPARATIVE PROFITS.

A summary of results in detail for the first six months of the year is as under:

	January.	February.	March.	April.	May.	June.
Tons milled	2,038,092	1,869,180	2,188,104	2,065,446	2,117,725	2,146,890
Ounces	653,842	607,918	689,645	667,926	681,551	699,199
Dwts. per ton	6·375	6·460	6·261	6·417	6·385	6·438
Value per oz.	107/6	110/0	105/0	102/6	105/0	102/6
Revenue	£3,495,160	£3,281,960	£3,467,618	£3,248,759	£3,364,447	£3,321,097
Revenue per ton	34/4	35/1	31/8	31/5	31/9	31/10
Total working costs	£2,458,000	£2,637,389	£2,751,008	£2,711,819	£2,746,300	£2,628,587
Working costs per ton	24/2	28/3	25/2	26/3	25/11	25/2
Realisation charges per fine oz.	1/0	5/0	6/3	7/6	8/9	7/0
Profit	£1,036,859	£641,571	£716,610	£533,940	£618,147	£692,510
Profit per ton	10/2	6/10	6/6	5/2	5/10	6/8

The Fly in the Ointment.

The native labour return for July shows a further falling off, the total number of boys at work on the gold mines on the last day of that month being 171,187 as against 179,827 at the end of June, a decrease of 5,640. The figures for the past three months are as follow:

	May.	June.	July.
On gold mines	184,722	179,827	174,187
On coal mines	12,897	13,036	13,005
On diamond mines ...	4,793	4,596	4,521
Totals	202,412	197,459	191,713

The group profits were:

	May.	June.	July.
Central Mining	£288,324	£323,178	£467,986
Barnato	172,965	204,330	261,913
Gold Fields	17,019	17,161	42,286
General Mining	32,055	34,997	43,406
Mines Selection ...	50,001	42,546	71,101
Union Corporation ...	75,277	78,691	96,677
	£635,641	£701,203	£983,382

In the following tables the profit earnings of the mines for the first seven months of the year are summarised in convenient form for investors' information:

Aurora West.—January, £111; February, £2,183*; March, £2,491*; April, £2,419*; May, £6; June, £480; July, £1,110.

Brakpan Mines.—January, £39,880; February, £31,906; March, £27,284; April, £16.373; May, £20,973; June, £21,475; July, £38,478.

City Deep.—January, £52.079; February, £26.033; March, £39,297; April, £35,706; May, £25.520; June, £38,202; July, £55,183.

Consolidated Langlaagte.—January, £16,864; February, £6,338; March, £10.060; April, £9,179; May, £9.107; June, £9,080; July, £12.006.

Consolidated Main Reef.—January, £18,682; February, £5,279; March, £10,422; April, £8,412; May, £11.473; June, £13,525; July, £19,199.

Crown Mines.—January, £88,825; February, £60.220; March, £82,590; April, £47,696; May, £63,257; June, £61,041; July, £88,304.

Durban Roodepoort Deep.—January, £2,107*; February, £1,637*; March, £2.313*; April, £11,317*; May, £3,414*; June, £2,511; July, £3,396

East Rand Proprietary Mines.—January, £28,842; February, £13,542*; March, £3,108*; April, £12,718*; May, £7,079*; June, £2,697; July, £8,215.

Ferreira Deep.—January, £13,427; February, £9,395; March, £9,734; April, £9 716; May, £7,040; June, £5,823; July, £17,097.

Geduld Proprietary.—January, £37,973; February, £32,786; March, £27,095; April, £20,992; May, £23,088; June, £21,448; July, £26,711

Geldenhuis Deep.—January, £6,990; February, £4,632*; March, £1,099*; April, £1,892*; May, £1,474*; June, £840; July, £3,437.

Government Areas (Modder).—January, £119,757; February, £96,045; March, £121,430; April, £108,321; May, £99,980; June, £105,320; July, £134,868.

Glynn's Lydenburg.—January, £2,264; February, £979; March, £1,295; April, £2,359; May, £1,966; June, £12; July, £2,297.

Knight Central.—January, £5,780; February, £625; March, £2,219; April, £1,378; May, £2,214; June, £2,662; July, £6,553.

* Loss.

Knights Deep.—January, £5.098; February, £12.717; March, £748*; April, £620; May, £2,196; June, £3.624*; July, £2.643.

Langlaagte Estate.—January, £8.326; February, £3,660*; March, £5,997; April, £5,499; May, £8.890; June, £13.367; July, £17,077.

Meyer and Charlton.—January, £28,054; February, £26.506; March, £23,049; April, £23.334; May, £26.347; June, £28,899; July, £26,989.

Modder "B."—January, £74.826; February, £47.397; March, £48.223; April, £43,621; May, £49.185; June, £57,894; July, £73.268.

Modder Deep. January, £78,854; February, £71,632; March, £69.226; April, £57,134; May, £57.534; June, £57.243; July, £69.966.

Modderfontein East.—May, £3.998*; June, £3.302; July, £7,005.

New Goch.—January, £1.443*; February, £4.264*; March, £3.313*; April, £3.906*; May, £132; June, £556; July, £2,062

New Kleinfontein.—January, £7,167; February, £2,884*; March, £1.414*; April, £4.050*; May, £2.684; June, £3.804; July, £11,672.

New Modderfontein.—January, £137.209; February, £122,440; March, £126,209; April, £111,590; May, £110,885; June, £111.662; July, £135,371.

New Primrose.—January, £2,626; February, £518; March, £785; April, £524; May, £1.007; June, £753; July, £752.

New Unified.—January, £4.837; February, £2,663; March, £2,681; April, £2,595; May, £2,331; June, £2,042; July, £2.595.

Nourse Mines.—January, £11,982; February, £1.536; March, £5,316; April, £162*; May, £1,979; June, £1.374; July, £7,348.

Randfontein Central.—January, £39.402; February, £5.952*; March, £4.960; April, £36,637*; May, £23.957; June, £5.460; July, £6,372.

Robinson.—January, £4,770; February, £812; March, £4.186; April, £2,261; May, £3.313; June, £3.246; July, £4,161.

Robinson Deep.—January, £20,003; February, £22,802; March, £16,933; April, £15,058; May, £3,746; June, £8,248; July, £16,072.

Roodepoort United.—January, £1,627; February, £3.223*; March, £5.234*; April, £6.503*; May, £2.484*; June, £2.225*; July, £1,516

Rose Deep.—January, £14.128; February, £5,992; March, £12,830; April, £12.824; May, £12,370; June, £16,288; July, £20.355.

Simmer and Jack.—January, £4,292; February, £6,126; March, £6.553*; April, £2,044*; May, £3,506; June, £2,947; July, £13,099.

Sub-Nigel.—January, £9,253; February, £10,009; March, £9.837; April, £10,150; May, £6,660; June, £7.416; July, £10.472.

Springs Mines.—January, £39,125; February, £21,960; March, £26.052; April, £27,020; May, £29.029; June, £21,071; July, £32.626.

Transvaal G.M. Estates.—January, £8,942; February, £4,162; March, £7.447; April, £3.366; May, £4,524; June, £8,321; July, £7,605.

Van Ryn Estate.—January, £10,683; February, £8.319; March, £7,047; April, £6,978; May, £5,053; June, £6,235; July, £8,205.

Van Ryn Deep.—January, £86,196; February, £70,340; March, £82,755; April, £63,145; May, £66.075; June, £61,051; July, £76.210.

Village Deep.—January, £7.772; February, £5.358*; March, £349*; April, 3,541*; May, £7,815; June, £7,068; July, £8.343.

Village Main Reef.—January, £3,287; February, £1,023; March, £137; April, £543; May, £2,160; June, £2,736; July, £3,390.

West Rand Consolidated.—January, £2,859; February, £1.527*; March, £101; April, £494; May, £3,001; June, £1,053; July, £3,524.

Witwatersrand.—January, £8,545; February, £8,087; March, £11,617; April, 6,122; May, £8.811; June, £6,491; July, £12,038.

Witwatersrand Deep.—January, £6.710; February, £5,082; March, £3.620; April, £2,274; May, £4.642*; June, £2,331*; July, £3,580.

Wolhuter.—January, £11,492; February, £10,295; March, £7.446; April, £4,174; May, £3,151; June, £3.499; July, £7.371.

* Loss.

Daggafontein.

The following cable has been despatched to the London office of the Daggafontein Mines, Ltd.: "Official sampling shaft No. 2: 22 sections, 44 samples, give 26·1 dwts. over 14½ inches; total, 379 inch-dwts."

Witwatersrand Deep.

The estimate of results at the Wit. Deep for the month of July is as under: Tons milled, 33,000; gold recovered, 8,938·160 ozs.; average number of stamps running, 200; stamps running time, 22 days; tube mills, 5; development footage, 417. The working expenditure, including head office charges for the month, is £42,359, or 25s. 8d. per ton. The estimated working revenue, based on an estimate of £5 5s. per fine oz., is £45,945, or 27s. 10d. per ton. The estimated working profit is £3,580, or 2s. 2d. per ton. The capital expenditure for the month is £3,170. The estimated working expenditure as above includes bank realisation charges, calculated at 1s. 6d. per oz.

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:

46 Survey Certificates to date, including three Honours Certificates.
Elsewhere One Survey Pass has been obtained to date.
Last two Managers' Examinations combined we secured 15 passes from 19 entries, a truly remarkable record.
We established a percentage record of passes, January, 1920, Managers' Examination.
We lead with Overseers Passes, 1918 and 1919, combined.
WRITE FOR PARTICULARS AND CLASS TIME TABLE.

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg
Bulawayo and Salisbury.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, *Johannesburg Branch Office.*

RHODESIA AND BELGIAN CONGO SECTION.

RHODESIAN MINING.

Chamber of Mines Returns—Southern Rhodesia's Output to Date Nearly £54,000,000.

The monthly report of the Executive Committee states that the following is a summary of the returns of native labourers employed on Southern Rhodesian mines during the months of April and May, 1920:—

	April.		May.
Local	9,735	......	10,006
Portuguese Territory	5,096	......	5,052
Northern Rhodesia	8,215	......	8,643
Nyasaland	11,572	......	11,374
Other sources	658	......	682
	35,276	......	35,757

The number employed in May, 1920, shows an increase of 4,652 as compared with the corresponding month in 1919. The rate charged by the local banks on native gold purchased was reduced to 2 per cent. on the 16th July, and further reduced to ½ per cent. on the 22nd idem. The Chamber was advised by the Acting Under-Secretary for Mines that Messrs. N. M. Rothschild & Sons had distributed on the 15th July the sum of £1 0s. 9d. per fine ounce profit on gold realised during the quarter ended July 30th last. The Exploring Lands and Minerals Company, Ltd., has joined the Chamber, and Mr. T. H. Cooke has been appointed as its representative.

Southern Rhodesia's metals and minerals output to date:

Gold (11,433,855 ozs.)	£46,695,928
Silver (2,890,179 ozs.)	368,606
Lead (7,072·17 tons)	94,788
Copper (20,155·19 tons)	1,703,078
Chrome Iron (650,385·88 tons)	2,000,967
Tungsten Ores (199·40 tons)	24,646
Coal (raised 4,684,303 tons) (sales)	*1,704,249
Antimony Ore (79·11 tons)	1,640
Asbestos (45,165·29 tons)	1,139,806
Arsenic (626·89 tons)	25,765
Ironstone (29,604·42 tons)	4,198
Tin (10·397 tons)	1,947
Barytes (53·66 tons)	88
Mica (31 tons 1,849 lbs.)	7,981
Diamonds (13,370·50 carats)	61,694
Other precious stones (72,977 carats)	8,065
Grand total value of mineral production to date	£53,843,446

*Includes value of coal used for coke and bricks.

* * * *

Northern Rhodesia output and value from commencement to June 30th, 1920, was as under:

	£	s.	d.
Gold (10,623·17 ozs.)	£44,752	13	1
Silver (39,178·55 ozs.)	3,791	15	11
Lead (39,308·11 tons)	701,849	11	8
Copper Concentrates (5,232·06 tons)	220,959	2	8
Copper Finished (6,788·85 tons)	341,293	17	10
Bismuth (6·24 tons)	3,491	9	5
Zinc Ore (13,156·00 tons)	84,577	0	0
Mica (1·187 tons)	412	0	0
	£1,401,127	10	7

Summary of production for June, 1920, was:—

Gold (45,054·19 ozs.)	£191,194
Silver (11,572·76 ozs.)	2,472
Coal (raised 45,701 tons) (sales)	14,364
Coal (used for coke and bricks (est. value)	5,941
Copper (blister) (291·55 tons)	14,078
Chrome Iron (7,599·64 tons)	32,378
Asbestos (1,408·10 tons)	61,519
Arsenic (24·30 tons)	837
Mica (8 tons 487 lbs.)	2,061
	£327,844

N.B.—The value of the above gold includes £2,100 premium.

A Typical Rhodesian Gold Mine: The Etna, in the Hartley District.

The output of asbestos was:—

Bulawayo District.	Tons.	Value.		
Birthday A. (Willoughby's)	253·07	£4,049	2	5
Birthday B. (Willoughby's)	3·97	29	16	3
Nil Desperandum (African Asb. Mining Co., Ltd.)	265·91	5,318	4	0
Shabanie (R. & Gen. Asb. Corp., Ltd.)	404·45	10,111	7	3
Shabanie (adjustments 1/4 1918 to 31 3 1919, under-declared)	—	16,614	14	11
Victoria District.				
Balmain (African Asb. Mng. Co., Ltd.	60·00	1,200	0	0
Gath's (R. & General Asb. Corp., Ltd.)	185·70	4,642	10	0
Gath's—adjustments 1/4 1918 —31 3 1919	—	15,722	7	4
King Asbestos (Rhod.), Ltd.	235·00	3,831	0	0
	1,408·10	£61,519	2	2

NOTICE.

PHOENIX PIPE AND METAL COMPANY
No. 6, LONDON HOUSE, LOVEDAY ST., JOHANNESBURG.

PIPING, ½in. to 16in., in Steam, Black and Galvanized.
VALVES, all kinds and sizes, also all Pipe Fittings.

CORRUGATED IRON, FENCING MATERIAL, TRUCKS, RAILS, ETC., AND GENERAL MACHINERY.
We carry large stocks of the above, in both new and second-hand, and solicit your enquiries.
TELEPHONE 1801, CENTRAL.

OUR FORTHCOMING RHODESIAN SUPPLEMENT.

" The South African Mining and Engineering Journal " will publish in the near future a special Rhodesian, Belgian Congo and Portuguese East African supplement, which will deal exhaustively with the mining enterprises and other industrial ventures of these territories. With this object in view a Special Commissioner of the Journal is leaving for Rhodesia at the end of next week, and will visit the principal centres of the territories mentioned in order to collect the latest first hand information on the spot. The supplement will be a most valuable and exhaustive guide to the position of the mineral industry in Northern and Southern Rhodesia, the Congo and Mozambique; regions, which are full of promise for tremendous development, but of which comparatively little of an up-to-date nature is known in South Africa, Europe and America. The supplement will be copiously illustrated with present-day photographs, which will be taken by our special representative, and it will be replete with maps, diagrams and the latest statistics. The supplement is being supported by the Rhodesia Chamber of Mines and the Rhodesian Railways. The publication will provide an exceptional advertising medium for all who are interested in the enormous and steadily increasing trade of these territories. Advertisers and readers are invited to state their requirements to the business manager of this paper at the earliest opportunity.

SHAMVA MINES.

The report of the directors of the Shamva Mines for the year ending December 31, 1919, states: The company's claim area now comprises 535 claims, ten additional claims having been pegged out during the year. During the year 1919 development and prospecting operations continued to open up new areas, disclosing a large tonnage of payable ore. At December 31, 1918, the estimated ore reserves stood at 2,023,000 tons, of an average estimated value of 4·36 dwts., to which were added up to December 31, 1919, 558,000 tons, of an average estimated value of 3·2 dwts. Deducting the tonnage crushed during the year, namely, 599,311 tons, of an average value of 3·5 dwts., the estimated ore reserves at December 31, 1919, are shown to have been 1,982,000 tons, of an average estimated value of 4·3 dwts. Although there has been no diminution in the cost of mining materials, or of War bonus to white employees, the directors are pleased to report that working costs were lower during the year 1919 compared with the previous year by 3½d. per ton, mainly due to their being distributed over the larger tonnage milled. Working costs having risen during the current year, the directors, acting upon the advice of the local directors and of the consulting engineer, have considered it desirable to counteract this tendency by increasing the capacity of the reduction works. Work in this connection has commenced. Four quarterly dividends, equal to 20 per cent., together with a bonus of 2½ per cent. for the last quarter, were paid for the year ended December 31, 1919. In respect of the current year, two quarterly dividends, at the rate of 30 per cent. per annum, have been declared for the six months ending June 30, 1920.

THE UNION MINIERE MEETING.

The meeting of the Union Minière was held in mail week. The particulars given by M. Jean Jadot command admiration at the gigantic work already performed, and which is being performed, in that part of Central Africa, in spite of numerous difficulties resulting from the War, from the great distance, and from uncontrollable circumstances, such as South African strikes, etc. The position which the Union Minière will assume amongst the copper producers of the world is indicated by the magnitude of the works already performed and by those now being carried out or in course of being planned. The fact that at its own station at La Panda (where great works are being built that will treat 1,000 tons of ore per day) there will be no less than sixty kilometres of track indicates the enormity of this enterprise. Execution of the programme now being carried out will cost some 135 million francs (of which some 60 have already been spent), and that afterwards further works will still have to be carried out. Tin mining is also giving encouraging results, useful coal discoveries have been made alongside the Katanga Railway, and the native labour conditions are improving.

* * * *

TATI CONCESSIONS.

Disappointment is expressed that the Tati directors do not see their way to pay a dividend, although they have had a fairly good year and a sum to credit of £11,041 at the end of the financial year on February 29 last. The profit was £8,695, against £4,935 in the previous year. The debenture debt has been substantially reduced, and is now £43,272. The company's cash and investments amount to £34,374. The company sold 10,264 acres on instalment terms, and 2,687 for payment within six months. Of farms held under " permits," there are 77,446 acres, and the live stock brought a profit of £1,026. The general manager regards the prospects as " better than ever."

* * * *

BWANA M'KUBWA PROSPECTS.

Tests made by the Minerals Separation Company have proved satisfactory, and negotiations are now proceeding to raise the capital necessary for further working. The board intimate that in the near future a scheme likely to prove acceptable to the shareholders will be submitted. The mine will be worked with the necessary reduction plant for the output of copper on a large scale. The result of an examination of the property by a financial group is said to have been highly satisfactory, but meanwhile operations have been temporarily suspended. The prices of Gaika and Globe and Phoenix have improved. Gaikas at 16s. 9d. mark a rise of 3s. 9d. on the week, and Globe and Phoenix at 18s. 6d. a rise of 1s.

Henderson's Good Year.

Henderson's Transvaal is to be congratulated on a very successful year, in which the net profit was £45,892, and the total to credit £89,370. A 6 per cent. dividend absorbed £42,267. It is proposed to place £5,000 to reserve fund, which now stands at £45,000. The record of the subsidiary companies is satisfactory. Tweefontein paid 10 per cent. on all classes of its shares and Henderson's Consolidated obtained better prices for its land, for which there was an " unprecedented demand." This concern paid 7½ per cent. The position of Daggafontein is improving, and Delagoa Bay Development paid 4 per cent. Much importance is attached to the company's asbestos interests.

The Modder West Gold Mining Company, Limited.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

In accordance with the resolution passed at the Special General Meeting of Shareholders held on 12th APRIL last, confirmed at the further Special General Meeting of Shareholders held on 27th April, 1920, whereby it was decided to divide the existing £1 Ordinary Shares of the Company into 10s. Ordinary Shares, Shareholders are requested to lodge their shares forthwith at the offices of the Company, No. 63, Cullinan Buildings, Simmonds Street, Johannesburg (P.O. Box 5221), to be exchanged for the new 10s. shares at the rate of two 10s. shares for each £1 share.

By Order of the Board,

ORR AND COETSEE,
Secretaries.

63, Cullinan Buildings,
Simmonds Street,
Johannesburg.
6th August, 1920.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

SOUTHERN VAN RYN REEF G.M. CO.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—I shall be pleased if you will kindly insert in your paper that we have just received a cable from London stating that the agreement by which this company purchases the assets of the Nigel Van Ryn Reefs, Ltd., has been confirmed by the shareholders.—Yours, etc.,

J. S. RICHARDSON,
Secretary.

28th July, 1920.

Coal Tar Disinfectants.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—Your timely article on the value of coal tar disinfectants in mine disinfection is one which should give everyone to think furiously, and though your strictures are amply justified in the case of mines and municipalities, still a great deal of the blame rests on the shoulders of the public themselves. The criminal indifference with which we regard our most precious possession—health—is only equalled by our aloofness from and apathy with regard to information which would aid us in our daily battle with those agents which engender disease and shorten life itself. It is not my purpose to again go over the ground which you have so thoroughly covered, but to indicate one or two other points of view than that from which you look at the subject, and to also criticise, perhaps not altogether favourably, one or two statements made in your article. It has always been my opinion that disinfectants should be grouped or graded according to their specific function, and thus much confusion would be avoided. I shall confine myself to the same class dealt with in your article, viz., the coal tar group, as this group contains by far the most generally used of all the various preparations, and at the same time affords the biggest field for profitable manipulation. If it were possible to sell disinfectants on a coefficient basis, that is, the price to vary directly as the strength, then much of the present confusion would be obviated. As it is, the advantage of a high coefficient perfectly emulsifying preparation is only apparent to the discerning few, and the indiscriminating many support the vendor of the low-grade article, and as a direct result of their obtuseness drive a very bad bargain. From a financial consideration alone the fact should be amply clear that the high coefficient article is by far the cheapest in the end; and this apart from considerations of toxicity or miscibility. Another point, to which you attach too much importance, as an index of quality, is the emulsion. Now, it is well known that disinfectant fluids made in the summer time, or in warmer weather, are more prone to show a slight film on the surface of the aqueous emulsion, also oils from different localities show varying results by this test; in short, the napthalene in the oil is the chief offender in this respect, and a coloured or dirty looking emulsion is not evidence that the fluid is of inferior quality. In many cases where an emulsion has been of indifferent appearance, the fault has been with the water. In the last paragraph you are on very dangerous ground, and in your claim that chlorine has only a small disinfectant value, you are in error. The real explanation of the matter is that, due to over zeal on the part of untechnical vendors or salesmen, or to ignorance on the part of those who should know better, chlorine preparations have been brought before the public as rivals or competitors of coal tar preparations. As a matter of fact, they are in a different class altogether, and can in no sense replace or substitute the carbolic preparations for the purposes indicated in your article. On the other hand, the Halogen compounds, chlorine, bromine, iodine and fluorine, essential oils and salts of mercury, have a sphere of usefulness and a specific utility from which they can never be displaced by coal tar preparations. The analysis you quote shows the preparation—probably an imperfectly electrolysed brine—to be useless for most purposes, and particularly for mine compounds, where coal tar preparations such as hycol are definitely indicated. As the subject of disinfectants is one I feel very strongly on, and as it is moreover essentially a technical subject, I fear that sometimes a popular presentation of the science may be robbed of part of its utility through embodying the very characteristics that popular presentation demands, but as the subject has been opened up—albeit popularly—under such an excellent aegis, I await with pleasure and interest your further articles as indicated.—Yours, etc.,

JOHN FREW.

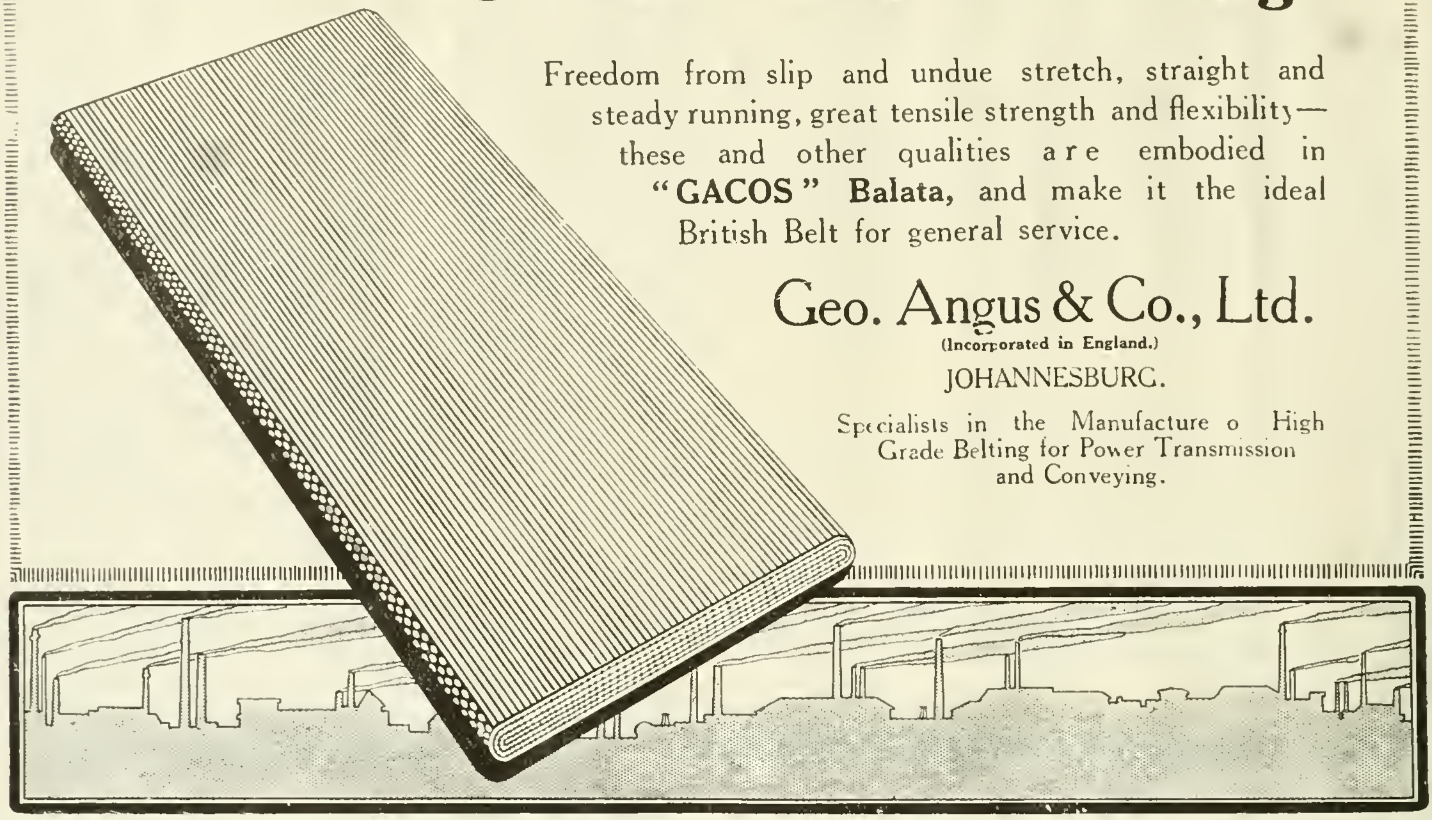
The Efficient Use of South African Coals.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—The writer has obtained a number of copies of your Special Coal Number December, 1919, and has been much interested in the very full data and information given therein with regard to the quality and output of coal at South African collieries. There are many instances given in the pages of your Coal Number deploring the fact that South African coal is as a rule somewhat below calorific value, and that much loss occurs owing to the friability and soft nature of the fuel, which results in heavy accumulation of dust at the mines. By using coal in pulverised form, and to this end some 18 million tons of coal are pulverised annually in the United States it is possible to use every ounce of coal brought to the bank and so to eliminate any wastage due to fine dust and smalls. By the use of coal in this manner it is moreover possible to obtain better results with low-grade fuels than is now the practice with the highest grade and most expensive coals imported into a country and burned on hand fired grates. I wrote some notes on the utilisation of waste coal, following the article which appeared in the *Iron and Coal Trades Review*, and I am sending you a copy of the June 18th issue, in which on page 840 you may be interested in the reference that I have made to South African fuels. The *Iron and Coal Trades Review* is being sent you under separate cover, together with a copy of the July number of the *Railway Engineer*. I am sending the letter to you as I have therein pointed out that coals containing up to 38·4 per cent. of ash are now being burned successfully on railway locomotives, and this application if tried should open up a very valuable field in South Africa. I hope that this information will be of interest to you.—Yours, etc.,

For FULLER ENGINEERING COMPANY,
A. C. HARVEY, European Manager.

25 Victoria Street,
Westminster, London, S.W.1,
9th July, 1920.



"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility— these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

C. C. WAKEFIELD & Co., Ltd.,

Manufacturers of

High-Class Lubricants

FOR

RAILWAY, MARINE, ELECTRICAL, MINE and COLLIERY WORK.

Makers of the Famous

"CASTROL" MOTOR OILS.

Patentees and Makers of

MECHANICAL LUBRICATORS.

P.O. Box 2123. Telephone 6418 Central
24/25, OCEANA BUILDING,
Simmonds Street,
JOHANNESBURG.

P.O. Box 1521.
HULSTON'S BUILDING,
Smith Street,
DURBAN.

Telegrams: "CASTROL."

THE WEEK IN THE SHAREMARKET.

Irregular on European Complications—Undertone Good—Modder B's Higher—Activity in Oils and Silvers.

The local market, in sympathy with the overseas bourses, has been considerably agitated over the Polish situation, which is complicated by Labour's threat to create trouble if Great Britain champions Poland, but latest developments point to a settlement.

THE TONE OF THE WEEK.

Irregularity has been the characteristic feature of the market during the week. The July profit declarations are remarkably good and not a single gold mine recorded a loss in respect of last month's operations. It is pleasing to note that the better results secured by one or two companies are in a considerable degree attributed to improved labour efficiency. This fact combined with the improved price for gold and the decline in realisation charges makes one decidedly optimistic as to the future outlook for gold shares. The week-end strike of the engine drivers does not appear to be a very whole-hearted affair, and if the European situation improves there should be an active market at generally higher levels. Modder B's have firmed up during the week and a number of shares changed hands at 135s. Provided gold keeps up in price, Consolidated Main Reefs are considered a good buy at anything under fourteen shillings, as both profits and development at this property are improving.

Diamonds have not been particularly active, but Frank Smiths have had considerable dealings on reports of the finding of a 10-carat stone worth £500. Tin stocks have been dull. The new flotation, Goabeb Tins, has, however, attracted attention, and the shares have had dealings at 11s. Oils are very active. African Oils, after being dealt in at 18s., relapsed slightly, and then improved to 19s. 6d., and Geluks have advanced to over 6s. This latter concern has secured some new and attractive properties. In well-informed quarters an oil boom is anticipated. Transvaal Silver and Base Metals have gone still better and the shares of "African Silvers" are inquired for at 41s. The week's prices are:

	Fri., 6th.	Sat., 7th.	Mon., 9th.	Tues., 10th.	Wed., 11th.	Thurs., 12th.
Anglo-Amer Corp.	30 6	30 9*	31 9	31 0	30 3*	30 6
Bantjes Cons.	3 3	4 0†	3 9†	—	2 9*	—
Brakpan Mines	53 0†	—	—	—	49 0*	52 6†
Breyten Colls.	—	8 0*	8 0*	9 3*	8 6*	8 6*
Brick and Potteries.	—	—	—	—	—	4 6*
British S.A.	—	—	—	—	15 0*	15 0*
Bushveld Tins	0 10	0 11	1 0	0 9*	0 9*	—
Cassel Coals	—	—	—	—	35 0†	35 0†
City and Subs.	7 0	7 0*	7 0*	7 3	7 1	7 0
City Deeps	52 0†	50 0*	50 0*	49 6*	50 0*	51 0*
Con. Diamonds.	30 0*	30 0*	—	—	30 0*	30 0*
Clydesdale Colls.	—	—	24 0*	—	—	—
Con. Investments	25 0*	25 0*	—	30 0†	—	—
Con. Langlaagtes	—	—	—	17 6†	17 6†	17 6†
Con Main Reefs	13 0	13 0*	13 3*	13 6	13 6*	13 6
Con. Mines. Select..	—	—	—	—	22 0*	22 0*
Coronation Colls.	—	—	—	—	60 0*	62 6†
Coronation Freeholds	1 3	1 3*	1 3*	1 3*	1 3*	1 4*
Coronation Syndicates	8 0*	—	—	8 0*	8 0*	8 0*
Crown Diamonds	6 0*	6 3	6 6*	6 7*	6 9*	6 9*
Crown Mines	52 6†	52 6†	52 6†	52 0*	50 0*	50 0*
Daggafontein Mines.	11 3	11 9	11 0	11 6	11 9	11 4½
Do. Opts. (5 yrs.)	3 0†	2 0*	2 9†	2 10†	3 0†	—
E.R. Coals	2 4*	2 4*	2 4*	2 4*	2 5	2 5*
E.R. Deeps	1 0†	1 0†	0 9*	0 9*	—	—
E.R. Minings.	13 6*	—	—	—		—
E.R. Props.	8 3	7 9*	8 0*	8 0†	7 9*	8 0*
E.R. Debentures	£66*	—	—	£70†	£66*	£66*
Eastern Golds	—	0 9*	0 10*	1 0*	1 0†	—
Frank Smith Dmds.	16 3	16 9	16 6*	16 7½	16 6	16 6*
Geduld Props.	38 6	38 6*	38 9	38 6*	38 9*	38 3*
Glencairns	—	—	—	1 3*	1 3*	1 3*
Glynn's Lydenburgs.	—	8 0*	—	8 0*	9 0*	9 6*
Govt. Areas	—	86 0†	84 6*	85 6*	85 0*	84 6*
Jhb. Bd. of Ex.	39 6*	—	39 6*	—	39 6*	—
Jupiters	2 0*	2 0*	—	—	—	2 0*
Kaalfonteins	0 3	—	0 5†	0 5†	—	0 5†
Klerksdorp Props.	2 0	2 0*	2 0*	2 0*	2 0*	2 0*
Knight Centrals	4 8	4 4	4 4*	4 4*	4 6	4 4*
Knights Deeps	—	—	4 6*	—		4 6*
Lace Props.	10 6	10 0	10 0*	10 0*	10 1½	10 0
Leeuwpoort Tins	20 0	19 6*	20 3	19 6*	20 0†	19 0*

	Fri., 6th.	Sat., 7th.	Mon., 9th.	Tues., 10th.	Wed., 11th.	Thurs., 12th.
Lydenburg Farms	7 0	6 9*	—	6 7	—	—
Meyer and Charltons					80 0*	—
Middelvlei Est.	1 9	1 6*	1 6*	1 9	1 6*	
Modder B's	130 0	128 0*	130 6*	134 0	132 6	130 0
Modder Deeps	42 3	42 9	42 10½	44 0	43 9	43 6
Modder Easts	22 6	22 4½	22 6	22 6	22 7½	22 6*
Do. Opts. (4 yrs.)	6 9	7 0	6 10*	6 10	6 11	6 11
Modder Wests	16 0	16 0	15 9*	15 9*	16 0	15 9*
Hume Pipes	22 0*	22 0*	22 0*	—	—	24 0
Natal Navig. Colls.		—			—	25 0*
National Banks	258 9	—	260 0*	—	—	279 0†
New Eland Dmds.	62 6†	62 6†	62 6†		62 6†	62 6†
New Era Cons.	8 6*	8 0*	8 9	8 0*	8 3*	8 3*
New Geduld Deeps	1 7*	—	—	—	1 7*	—
New Heriots	6 0	5 6*	5 6*	—	—	7 0†
New Kleinfonteins	7 9	7 9*	7 9*	7 11*	8 2	8 3
New Modders	69 0	69 9	70 0	70 3	70 6	70 [illegible]
New State Mines	28 0	28 0*	28 0	28 0	28 6a	27 6*
Nigels	—	6 0*	—	—	—	—
Nourse Mines	8 0*	8 0*	8 0*	—	—	—
Pretoria Cements	66 0	67 0	66 3*	66 3*	66 3*	65 6
Princess Estates	0 7*	0 7*	0 8*	0 7*	—	0 7*
Rand Colls.	—	3 0†	—	—	—	—
Rand Nucleus	—	1 2*	—	—	1 1*	1 3*
Randfontein Deeps.	6 3†	5 9	5 6*	—	5 9*	5 11
Randfontein Est.	18 3	18 0*	18 3	18 0*	18 0*	18 0*
Roberts Victors	12 0*	12 6*	12 6*	11 6a	13 0	12 9*
Rioobergs	7 0*	7 0*	7 0*	7 0*	7 0*	7 0
Roodepoort Uniteds.	—		—	—	0 6*	0 6*
Rouxvilles	22 0	23 6	25 0	24 6	24 6*	24 6*
Shebas	1 6*	1 6*	1 6*	1 6*	—	2 0*
Simmer Deeps	0 6†	—	0 6†	—	—	0 6†
S.A. Alkali	27 6*	27 6	27 6*	—	27 0*	27 0*
S.A. Breweries	28 0*	28 0*	28 0*	—	28 0*	28 0*
S.A. Lands	4 9*	4 6*	4 7*	4 8*	4 7*	4 7*
S.A. Townships	—	12 0†	11 6*	11 0*	11 6*	11 6†
Springs Mines	38 9	38 9	38 6*	38 6*	38 6*	38 9
South Van Ryns	8 0	8 0*	8 0	7 10*	8 0	8 0
Sub-Nigels	16 9	17 3	17 9	17 9	17 6	17 3
Swaziland Tins	—	—	9 0*	—	9 0*	9 0*
Trans. G.M. Est.	12 0*	12 0	11 6*	13 0†	11 9*	11 9
Transvaal Silvers	49 0	48 0*	49 6	51 0a	51 0†	49 0*
Do. Options	28 0	27 0*	28 0	28 6	28 6†	28 6†
Tudors	—	0 9†	0 9†	0 9†	0 9†	—
Tweenfontein Colls.	22 0†	—	20 0*	—	20 0*	20 0*
Union 5 per cent.	£99¾	£100*	£100*	£100¼*	£100¼	£100½*
Van Ryn Deeps	78 0	—	77 6*	78 0*	77 6*	77 0*
Van Dyks	1 6*	—	1 6*	1 9*	—	—
Village Deeps	10 0*	10 0*	—	9 9*	10 0*	9 6a
Village Main Reefs	—	7 0†	7 0†	—	—	—
Victory Monarch	—	77 0*	—	—	—	—
West Rand Cons.	5 0†	5 0†	—	—	—	—
Western Rand Est.	4 3	—	4 3*	4 3*	4 3*	4 3*
Witbank Colls.	49 0*	49 0*	50 0*	—	49 0*	49 0*
Wit. Deeps	7 6*	8 0	—	—	—	7 6
Wolhuters	3 7*	3 8*	3 6*	4 0†	3 8*	4 0†
Zaaiplaats Tins	7 3†	7 0	7 1*	7 3	7 2	—
Victory Diamonds	1 1*	1 1*	1 1	1 1	1 2	1 0*
West Springs	16 3	16 0*	15 9*	15 9*	16 0*	16 0*
Do. Options	3 0*	2 9*	2 6	2 6*	2 0*	2 9*

*Buyers. †Sellers. aOdd lots. bEx London.

Modder West Gold Mining Company: July Report.

Mr. H. Rose-Martin, general manager of the Modder West, has issued the following report on the operations for July:—Crushing: Mill (5 stamps) ran 30·042 days. Five stamps hung up owing to broken cam shaft. Tons milled, 505. Fine gold, 101·72 oz. Value per ton, 21s. (gold at 105s. per oz.). Returns are from plates alone. "600" screen is still being used. Development: The drives both east and west are in payable ore and showing the usual widths, varying from 72 to 120 inches, over the Main Reef. The outcrop has been traced a further small distance, and extracted from both the east and west stopes. Prospecting: The outcrop has been traced a further small distance, and where exposed both the main body and the leaders give excellent values. It is anticipated that further prospecting shafts will disclose the new direction of the reef at an early date, and that the work of tracing the outcrop will be easier and more reef will be opened up quickly.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

THE ROYAL BANK OF CANADA
HEAD OFFICE, MONTREAL.

LONDON, ENG.
PRINCES ST., E.C.

NEW YORK.
68, WILLIAM ST.

PARIS, FRANCE.
THE ROYAL BANK OF CANADA (FRANCE)

BARCELONA.
PLAZA DE CATALUNA 6

685 BRANCHES.

590 Branches in Canada and Newfoundland, also

95 FOREIGN BRANCHES.

ARGENTINA Buenos Aires.
BRAZIL Rio de Janeiro, Santos, Sao Paulo.
URUGUAY Montevideo.
VENEZUELA Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello.
COLOMBIA Barranquilla.
COSTA RICA San José.

WEST INDIES

CUBA—Havana (6 Branches), Antilla, Banes, Bayamo, Caibarien, Camaguey, Camajuani, Cardenas, Ciego de Avila, Cienfuegos, Cruces, Cueto, Florida, Guantanamo, Jatibonico, La Maya, Manzanillo, Matanzas, Moron, Nuevitas, Palma Soriano, Pinar del Rio, Puerto Padre, Sagua la Grande, Sancti Spiritus, Santa Clara, Santiago de Cuba, and at thirteen other points.

PORTO RICO—San Juan, Mayaguez and Ponce. **HAITI**—Port-au-Prince.

DOMINICAN REPUBLIC—S. Domingo, Puerto Plata, Sanchez, S. Pedro de Macoris, Santiago de los Caballeros and La Romana.

MARTINIQUE Fort de France, Trinidad.

QUADELOUPE—Pointe-à-Pitre and Basse Terre.

BRITISH WEST INDIES — Antigua, Bahamas, Barbados, Dominica, Grenada, Jamaica, Montserrat, Nevis, St. Kitts, Trinidad and Tobago.

BRITISH CUIANA—Georgetown, New Amsterdam, &c.

BRITISN HONDURAS—Belize.

CAPITAL PAID UP & RESERVES $35.000.000
TOTAL RESOURCES OVER - - $560,000,000

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams : "THAINE."

Our PENN

Machinery Steel
High Carbon

Is Tough, Clean, Free-Cutting. We Guarantee its Uniformity and High Quality. Suitable for Lead Screws, Shafting, Spindles, Piston Rods, Pins, Machine Bolts, Axles and all work where a Better Grade of Steel is required.

Write to-day for Stock Catalogue.

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

INFORMATION FOR INVESTORS.

Knights Deep, Ltd.

The twenty second ordinary general meeting will be held in the board room, Consolidated Gold Fields Buildings, on Friday, October 29th, at 12 noon

The Modder West Gold Mining Co., Ltd.

In accordance with the resolution passed at the special general meeting of shareholders, held on 12th April last, confirmed at the further special general meeting of shareholders held on the 27th April, 1920, whereby it was decided to divide the existing £1 ordinary shares of the company into 10s. ordinary shares, shareholders are requested to lodge their shares forthwith at the offices of the company, No. 63 Cullinan Buildings, Simmonds Street, Johannesburg (P.O. Box 5221), to be exchanged for the new 10s. shares at the rate of two 10s. shares for each £1 share.

Glynn's Lydenburg, Ltd.

The twenty-third ordinary general meeting of shareholders for the year ended 31st July, 1920, will be held in the board room, The Corner House, Johannesburg, on Wednesday, 15th December, 1920, at 3.45 p.m.

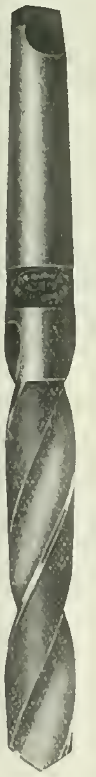
General Mining and Finance Corporation.

The twentieth ordinary general meeting of shareholders will be held on September 2nd.

The Consolidated Diamond Mines of South Africa, Ltd., is issuing an additional 724,500 shares.

* * * *

At an extraordinary general meeting of shareholders in the City Deep, Ltd., held on July 30th, Mr. J. R. Leisk, C.M.G., who presided, moved: "That the provisional agreement, dated 19th May, 1920, entered into between the board of directors of this company and the board of directors of the City and Suburban Gold Mining and Estate Co., Ltd., for the purchase by this company, at the price of 45,000 (forty-five thousand) fully paid up £1 (one pound) new shares in this company to be created and to rank for all dividends declared after 30th June, 1920, of all the property and assets of the City and Suburban Gold Mining and Estate Co., Ltd., with the exceptions mentioned in the said agreement and upon and subject to the terms and conditions set forth therein, be and the same is hereby adopted and confirmed." Mr. W. Dalrymple seconded the resolution. There being no questions, the resolution was put to the meeting and declared carried. The chairman then proposed the following further resolution: "The the capital of the company be and it is hereby increased from £1,250,000 (one million two hundred and fifty thousand pounds) to £1,295,000 (one million two hundred and ninety-five thousand pounds) by the creation of 45,000 (forty-five thousand) new shares of £1 (one pound) each, which new shares shall be issued to the City and Suburban Gold Mining and Estate Co., Ltd., as fully paid up against transfer of the assets specified in the said agreement; such shares to rank for all dividends declared after the 30th June, 1920." Mr. W. S. Saunders seconded the resolution. There being no questions, the resolution was put to the meeting and declared carried.



'Phone 4673. Box 3162.

OSBORN'S
DRILL STEEL (solid and hollow).
TOOL „
ALLOY „
SPRING „
SHAFTING „
PLATE „

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
"DALY" TAPPETS.
TRUCK WHEELS & AXLES.

"TITAN" MANGANESE STEEL.
CRUSHER SPARES & MORTAR BOX LINERS.

MUSHET HIGH SPEED STEEL.

—Files, Shovels, Saws, etc.—

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

UNDERGROUND PROSPECTING BY MEANS OF ELECTRICITY.

A communication on the above subject has been made to the Académie des Sciences by M. C. Schlumberger. Since 1912 the author has conducted a series of experiments with a view to ascertaining the presence of minerals of high conductivity by the distribution of electric currents, employing a chart showing the potential at various points on the surface. When the strata are homogeneous and level, the potential is calculated by the application of theoretical formulæ based on Ohm's law; if, on the other hand, the soil contains various heterogeneous elements, such as rocks of varying conductivity, these affect the passage of the current and create disturbances which influence the distribution of potentials on the surface. By such means it is possible to determine the disposition of the rocks or minerals in relation to depth. Continuous current is employed in order to obviate error due to induction. The data may be checked by underground surveys where possible. The generator consists of a set geenrating current at a pressure of 100 to 200 volts with low amperage. The two points of observation may be some hundreds of thousands of metres apart, according to the nature of the problem. The difference in the potentials is ascertained by a portable galvanometer and a small potentiometer in a short line connected with earth at its two extremities by two electrodes of special form. The electrodes are formed of a copper strip dipped in a solution of copper sulphate, the latter being contained in a porous jar in actual contact with the earth. This form of electrode is necessary in order to eliminate errors due to polarisation, which would be produced if the bare terminals were in direct contact with a damp soil. The method has been applied at Calvados, in Normandy, to study the silurian lying beneath a cover of triassic limestone extending over 10 sq. km., and at Bor, in Serbia, for the study of pyritous strata.

Par of Exchange with South Africa.

"Are Canadian exporters to South Africa aware that the American Bank in Capetown has undertaken to solve the exchange difficulty for their clients by enabling them to transact business at or very near par," says a Canadian exchange. "A statement to this effect is made by a merchant in Capetown, who is not able, however, to disclose the nature of the arrangement between the bank and the local American indent houses. It is in the hope that they will free American export trade in this manner that the coming of the Edge Act financial corporations is regarded with so much interest among American exporters, but we were hardly prepared to find that an ordinary American bank would attempt business of this kind. Canada, as far as we know, has no direct banking connections with South Africa, nor have any of the South African banks yet opened a branch in the Dominion. Will the American bank extend the benefit of its new scheme to Canadian exporters? Failing that, if the scheme should prove successful, it might place Canadian competition at a serious disadvantage in this important market. Meantime, it emphasises the importance of the question of providing means enabling Canadian exporters to sell on credit where necessary."

A NEW GOLD LAW TO ASSIST THE PROSPECTOR.

How to Encourage the Development of Our Mineral Resources—Aid for the Outside Districts—Mr. T. G. Trevor's Suggestions.

Interesting suggestions were embodied in Mr. Trevor's reply to the discussion of his paper "On the Economic Results Attending the Gold and Base Metal Mining on the Outside Fields," read before the Chemical, Metallurgical and Mining Society of South Africa. They are as follows:

1. The ownership and administration of all mineral deposits in the Union, not already worked or held under mining title, to be vested in the Government.

2. The landowners to receive, in compensation for their present rights, a royalty of say 5 per cent. on the gross value of all minerals removed or sold from their land; or, alternatively, a royalty on the net profits of working after the deduction of Profits Tax, say of 15 per cent.

3. The whole country to be thrown open to prospecting and mining, subject to reasonable reservations regarding homesteads, cultivated lands, water rights, etc.

4. The prospector to lodge Government Stock to the value of £50, with the authority issuing his licence, as security for good behaviour and against judgment for damages.

5. A prospecting licence to empower the licensee to enter any land, other than that reserved, and to sample and examine any rock, soil or formation, and to remove samples, but not to empower him to make any excavations more than one foot in depth without the consent of the owner. The licence also to empower the licensee to camp and remain on any public outspan for one month at a time.

6. The difference in the present law between precious and base metal claims and licences to be abolished and all claims to be on one basis.

7. A prospector wishing to do further work, to lodge a further security of £50, and to take out claim licences as under the present Gold Law, the whole or half of these licence moneys to go to the owner.

8. Before a claimholder can abandon his claims and get a return of his security money he must produce a quittance from the owner of the farm and from the Mines Department to say that he has either filled up his workings or made good for the disturbance caused by them.

9. Any necessary surface rights needed by the miner to be paid for to the owner at a rate calculated on the valuation of the ground plus 50 per cent.; but these rights to lapse to the owner on the lapsing of the mining title to which they were attached, and all material left on the ground at the lapsing of the title to become the property of the owner. In the case of any dispute, the valuation to be settled by the Magistrate of the district, assisted by two assessors.

10. In the case of any action against a prospector for crime or for violating the terms of his licence, the Magistrate convicting him to have the power to suspend or cancel his licence and to deduct any fine from his security money.

11. When the mineral development on any farm renders it desirable in the opinion of the Minister of Mines, that farm to be proclaimed a public mineral field, as under the present law, the Government to assume full control of it, both surface and mineral, the owner, as at present, receiving half the revenue and his werf, but not the mynpacht, as he receives compensation for that in royalties.

In his remarks, Mr. Trevor makes a strong point of the comparative uselessness of throwing open isolated farms. He says: "As every prospector or geologist knows, minerals are not bounded by the boundaries of a farm—what a prospector needs are whole mineral provinces to work over, following indications from one farm to another until he arrives at the point where indications are strongest, to where he can do his work to the best advantage. A very good example of this is the mineral province represented by the Transvaal Bushveld. If the whole of this area were open the writer would strongly advise any prospector, or any house interested in prospecting, to systematically prospect this area; but, as things stand, he does not know of a single farm not yet taken up, which he could definitely recommend anyone to spend money on under existing conditions." He points out that the same is true as regards the whole of the granites, stretching from Capetown round the Continent and up to Rhodesia. There is every probability that, tin having been found near Capetown and then again in Swaziland, scientific prospecting would discover other areas along this line, if it could be consecutively carried on.

Mr. Trevor, in conclusion, goes on to say: "This country is threatened with disaster from the closing down of its low-grade mines. Only two methods can be found for postponing or tempering that disaster, the one is to keep the low-grade mines going by facilitating their working in every possible way; the other is by finding new mines and industries to replace them as they fail. Both methods will be necessary if the disaster is to be averted. The writer, being more conversant with the outside districts than the low-grade mines, has tried to indicate the second method."

CAPE ALLUVIAL DIAMOND OUTPUT.

OFFICIAL RETURN FOR PUBLIC DIGGINGS.

The following is the statement of the output of diamonds from the public diggings in the Cape Province during the month of June:—

BARKLY WEST.

	No. of Diggers.	Weight, Carats.	Value. £	s.	d.
Delport's Hope	20	104	1,073	10	0
Forlorn Hope	10	82¾	1,152	0	0
Gong Gong	36	394	4,807	0	0
Good Hope	70	275¾	1,862	8	6
Harrisdale	37	219¾	2,377	5	0
Hebron	63	166½	1,637	12	6
Holpan	30	102	1,077	12	6
Jonas Kopje	2	3¼	30	0	0
Kareepan	24	173	1,870	0	0
Keiskama	1	3½	35	0	0
Klipdam	37	201	2,053	0	0
Klipdrift	68	281¾	2,486	17	6
Longlands	31	153½	1,575	10	0
Niekerk's Rush	13	72½	635	0	0
Rickett's Pros.	17	84¼	938	12	6
Rooidam	26	198	2,612	10	0
Scholtz's Pros.	18	58	581	0	0
Snyder's Rush	9	60¼	561	10	0
Van Zoolen's Laagte	6	9½	60	10	0
Waldeck's Plant	40	357½	3,863	5	0
Ward's Hope	4	6¼	40	5	0
Winter's Rush	20	238¼	3.784	15	9
	582	3.245¼	£35,088	3	6

N.B.—The number of claimholders in the Barkly West district during June, 1920, was 1,912.

HERBERT.

			£	s.	d.
Brypaal	21	118	1.035	5	0
Davisdrift	22	133½	1.919	0	0
Mosesberg	4	113½	582	0	0
Plat Drift	2	4¼	51	0	0
Schmidt's Drift	29	106¾	979	5	0
Sevonelles	1	½	1	10	0
	342	2.390½	£25,850	0	0

KIMBERLEY.

			£	s.	d.
Robinson's Kopje	20	131¾	1,851	15	0
Wedberg	30	182¾	2,226	10	0
	50	314	£4,078	5	0

TAUNGS.

			£	s.	d.
Home Rule	16	192¾	1,916	10	0
Killarney	5	21¼	188	10	0
Tlapping	321	2,176½	23,745	2	6
	342	2,390...	£25.850	2	6

THE METAL MARKETS.

Latest advices from London report:—Zinc dust: Australian high-grade material remains at £85 per ton. Antimony: English regulus, as mentioned in our last report, was reduced early in June to £60 per ton, at which figure it has remained. Foreign regulus has been easy, and business has been done down to £48, but warehouse material seems to be now rather better held, and is quoted at about £52. Arsenic: The demand is only small, but prices are firm at £74 to £75 per ton for white delivered London. Bismuth: A steady business continues at about 12s. 6d. per lb. Cadmium: A fairly good demand is about, and a steady business is passing at about 6s. 3d. to 6s. 6d. per lb. Aluminium: The home trade price is still quoted at £165, while £185 is asked for export. Nickel: Steady and unchanged at £230 for home and export. Cobalt metal: 14s. per lb. Cobalt Oxide: 10s. per lb. (black). Platinum: There is little feature in this market, and the tone has again been weaker, in view of the continued absence of demand. The price is nominally £20 per oz. Palladium; Nominal. Quicksilver: This market has had rather an uncertain tone owing to the reappearance of second-hand offerings, which in the present quiet state of the demand had perhaps a disproportionate effect in depressing values. The present quotation is about £20 to £20 10s. per bottle. Selenium: 10s. 6d. to 13s. per lb. Tellurium: 90s. to 95s. per lb. Sulphate of copper: The demand continues quiet. Prompt material is quoted at £44 to £45, while for forward £50 is wanted. Manganese ores: This market has ruled slightly easier, although there has been little change in conditions generally. Indian grades are quoted at about 4s. 3d. per unit c.i.f. Several shipments of Caucasian ore have been made recently to this country as well as to the Continent. The price of this grade is about 4s. c.i.f. European ports. Tungsten ores: The tone is easier and business is not very brisk. Business has been reported around 27s. 6d. to 28s. per unit for 65 per cent. Molybdenite. Quiet and quotations nominal. Silver: On June 1 the price of spot standard bars was 58⅝d., falling to 44d. on the 15th of the month. Later the tone became firmer, and at the end of the month the price was 52d. for spot standard bars. Graphite: A fair inquiry is about, but the position is little changed, and prices range from £60 to £80 for soft velvety flake, 85 per cent. to 90 per cent., to £25 c.i.f. for Madagascar 82 per cent. to 85 per cent. Chrome ores: 48 per cent. to 50 per cent., £9 to £9 10s. per ton. Iron and steel: Business in pig iron has continued difficult owing to the continued scarcity of supplies in comparison to the extent of the demand, and, owing to the pressure of home needs, export business has been rendered practically impossible. Some of the Cleveland works have been able to start idle furnaces, so the quantities available should soon be increased to some extent. Prices remain at 230s. for No. 1 Cleveland and 217s. 6d. for No. 3. East Coast hematite is also scarce, although the situation is not perhaps so stringent as in the case of Cleveland pig iron. The price of East Coast mixed numbers remains at 260s. for the home trade and 265s. for export to allied countries. In regard to manufactured iron and steel, owing to the well booked condition of works, prices are still high and orders difficult to place. There is now an increasing feeling, however, that prices are at the top, and buyers therefore are only inclined to place orders for absolute necessities. Consequently some falling off has been seen in the demand.

The Mining Profession and the Public.

Our attention has been directed to the fact that whilst most professions are protected by law so that those who would practise have to prove their proficiency before some competent authority, mining engineering is at the mercy of any charlatan who cares to put one or two meaningless letters after his name generally M.E., which is taken to represent mining engineer. Even more so than the profession are the public entitled to safeguards. A doctor cannot dally with the lives of his fellow-men unless he is qualified to do so. And if there is any true sense of the equivalent in the time-honoured threat of the highwayman, "Your money or your life!" it is just as important that the public should have their banking accounts protected by law as their lives. Mining engineering is a serious profession. It is perhaps concerned with the speculation and investment of more wealth than any other profession in the world, and yet any one, it seems, is allowed to proffer his convictions on deeply technical subjects which he may understand only very remotely and through the medium of a cunningly worded prospectus invite the public to stand and deliver. This sort of thing ought to be stopped. If the law cannot prescribe a remedy the public should be educated up to demanding that an unknown mining engineer should present his credentials if any measure of importance is to be attached to his views.

DICK'S
BALATA
BELTING.

TRADE MARK
DICK'S ORIGINAL BALATA GUTTA PERCHA & CANVAS BELTING

RIDDELL'S "ADAMANT" STEEL SCREENING.

SOLE AGENTS:
S. P. RUTHVEN & SON
(Established 1892),
3, WINCHESTER HOUSE, JOHANNESBURG.
P.O. Box 3013. Telephone 80. Telegrams: "BELTING."

DIAMOND RETURNS FOR JUNE MONTH.

SOUTH-WESTERN TRANSVAAL DIGGINGS.

The returns from the various alluvial diamond diggings in the South-Western Transvaal for the month of June amounted to 8,656 carats, value £88,030, as compared with 6,341 carats, value £61,910, in May, and 8,390 carats, value £141,415, in April. The returns for June month are officially reported as follows:—

	Carats	Value
Bloemhof 130	415½	£3,049
Bloemheuvel 171	51¼	1,331
Bospan 155	28½	201
Blesbokfontein 63	1,164¾	10,035
Biesjeslaagte 23	6¼	27
Christiana	24¼	257
Cawood's Hope 79	6	79
Doornbult 93	25½	208
Diamantdoorns 131	7¼	102
Dievedraai 245	16	194
Eastleigh 593	32¼	338
Goodhope 78	2¾	14
Grootdoorns 133	52¾	355
Goudplaats 318	138¾	2,670
Homansvlei 85	¼	10
Holloway's Rust 142	109½	817
Italie 328	57¾	470
Klippan 174	11½	52
Kareepan 137	736½	10,179
Kromellenboog 108	3½	10
Klipkuil 104	28	247
Kafferpan 65	4	55
Koppiesvlei 54	6¼	71
Katdoornkraal 163	1¾	13
Kameelkuil 112	1,229¾	13,033
Leeuwfontein 143	166½	1,664
London 33	295½	2,755
Mooifontein 128	43¾	288
Mimosa 75	11½	302
Olivenfontein 376	3¾	21
Plessisdam 121	236½	2,270
Rooikraal	5½	30
Rietput 120	4¾	26
Rietkuil 138	1,491½	14,471
Schaaplaats 10	1	10
Schaapboschdraai	3½	11
Syfergat 150	219½	1,558
Sandringham 25	14½	100
Schweizer-Reneke	236¾	2,529
Vuurfontein 61	4¼	28
Volgelstruiskail 17	¾	6
Witkop 195	10¼	51
Welgevonden 52	1¾	20
Zevenfontein 165	118	976
Zwartlaagte 68	1,626	16,797
Total	8,656	£88,030

OTHER TRANSVAAL AREAS.

	Carats	Value
Bynestpoort 520	1,655	£8,395
Kameelfontein 106	226	645
Rietfontein 501	62	30
Kaalfontein 402	41	21
Roodeplaats 314	3	5
Total	1,987	£9,096

BY THE WAY.

A Non-serious Column for Serious People.

According to the daily press sleeping sickness has broken out at Randfontein. As a matter of fact this fell disease has been rampant along the Main Reef for years. It generally attacks whites, who frequently become so overwhelmed with "lethargica" that they relapse into a state of coma on their powder boxes.

* * * *

A correspondent forwards the following rules and definitions for guidance to those who dabble on the market:

1. Never speculate with your own money; always gamble with the money belonging to someone else.

2. Remember that there are only three safe and certain ways of making money out of the stocks and shares of mining companies: (a) Out of the flotation; (b) out of the liquidation; (c) out of the reconstruction.

3. A mine is a hole in the ground which is owned by a liar.

4. There are three kinds of liars in the world: (a) The ordinary liar; (b) the damned liar; (c) the mining engineer.

5. A broker is a man who breaks people.

6. A Bank is a place where overdrafts are kept.

7. Speculators generally live on the interest of what they owe.

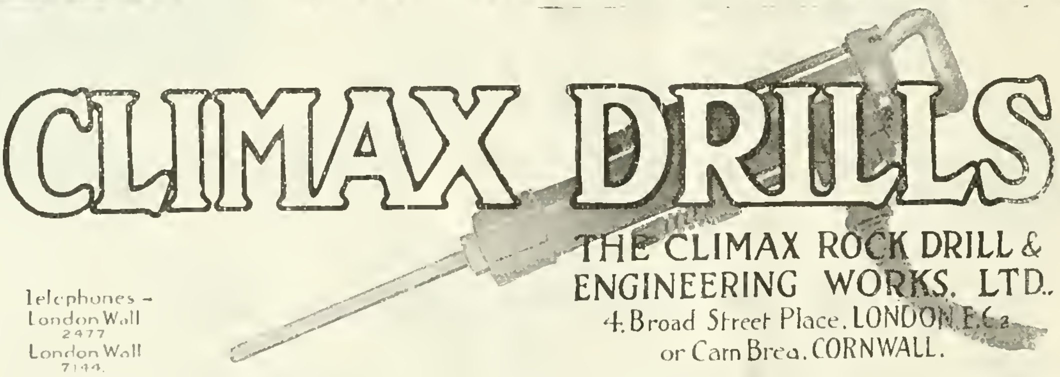
* * * *

There is another definition which, in view of the recent iron and steel debate in the House, seems worthy of a facetious definition here. The word is Trust. A Trust has been defined as a number of men who can't trust each other, but who manage to get the public to trust them.

* * * *

A high financial authority informs us that, provided the premium does not remain stationary, the price of gold is either likely to go up or come down in the next few days.

Those who have the conservation of the world's oil supplies at heart are appalled at the wholesale substitution of oil for coal in the boiler-furnaces of the great ocean steamers. Our sympathies are entirely with Admiral Dumas, who, as recorded in a recent issue of the Magazine, is strongly of opinion that oil should never be used if other sources of power are readily available. But it is useless to ask the kings of commerce to foster the spirit of altruism.—*The Mining Magazine.*


CLIMAX DRILLS
THE CLIMAX ROCK DRILL & ENGINEERING WORKS, LTD.
4 Broad Street Place, LONDON, E.C.2
or Carn Brea, CORNWALL.
Telephones – London Wall 2477 London Wall 7144.
Local Address: P.O. Box 2303.——JOHANNESBURG.——'Phone 2190.
Agents: S. SYKES & CO., Ltd.

A MINING CRISIS IN CORNWALL.

Acute Situation—Dolcoath Mine in Extremis—Parallel with the Rand.

The Rand is by no means the only portion of the mining world which has felt the pinch of rising wages, excessive prices for stores, labour inefficiency and other adverse factors to such a degree that cessation of work at numerous propositions has resulted. An acute crisis has arisen in Cornwall in consequence of the decision to greatly curtail work at Dolcoath, one of the most famous mining ventures in the world, and which has been working incessantly for the past hundred and twenty years. According to advices from Cornwall first to hand, the actual number of men discharged from Dolcoath mine, Camborne, in mail week, was 135, including 50 on surface. During the morning a meeting of the directors was held, of this the *Western Daily Mercury* says:

Mr. R. Arthur Thomas (managing director) stated that the position of the mine remained unchanged, pending the reply of the Government as to whether they would come to the rescue of the industry. He had not yet given up hope on that score. The discharge of hands at Dolcoath, like Grenville, was entirely due to monetary difficulties. It involved abandonment of the bottom workings, removal of the electrical pumping plant from the bottom station of the Williams shaft, and consequent flooding of the lower levels. A week's notice had been given to the contract men to clear up their pitches. Tributers had the choice of working pitches to make a possible living, but they could not be further financed by Dolcoath. On Saturday the Joint Industrial Council had not received from the Board of Trade an answer to their "S.O.S." This evening the miners will hold a meeting at Camborne to discuss the crisis.

A later message, dated July 1, states: The last appeal to the Board of Trade on behalf of the Cornish tin mining industry has failed. It will be recalled that last Friday the Joint Industrial Council forwarded to the Board a resolution asking that the matter should be treated as one of real urgency, and emphasising the fact that assistance is immediately essential to prevent largely increased unemployment. Last night, however, we were informed by Mr. A. Abercromby, secretary of the Joint Industrial Council, that he had received a reply from the Board of Trade to the effect that they had given the matter anxious consideration, but after reviewing all the circumstances they regretted that they did not see their way to ask Parliament to vote any financial assistance to the industry. They also said that the Development Commission had no funds which could be utilised for this purpose.

Commenting on this, a Redruth correspondent writes to the *Western Daily Mercury*:—It is, in a way, gratifying that the management of Dolcoath has resolved not to close down the mine absolutely at the expiration of the month's notice, but to discharge the men by degrees with the object of softening the blow, so far as Camborne and the neighbouring villages are concerned. There is no doubt that Dolcoath is at its last gasp, and the discharge of 135 of its 680 employees proves that the notice was no mere cry of "Wolf!" It will take some time to stop such a huge concern, as, of course, an immense quantity of machinery and plant has to be taken out and realised, so far as may be. With its 95 miles of levels and other drivings, if once the water gets in, it may be taken as certain that it will not again be "forked" during the present generation for the capital required for such a purpose would be enormous. When it is borne in mind that during the last 20 years there have been many failures in attempting to unwater old properties it will be realised that the most extensive of them all will provide an engineering problem of great magnitude. So far as possible tributers will be allowed to continue working underground for what they can get "on their own" but the number will necessarily be limited, and it is not at present known how many they will be.

Effect on Camborne.

The effect of even a partial stoppage of Dolcoath mine on Camborne town will be very marked, while, if it is stopped altogether, the main factor of the town's prosperity will have vanished. Last year Dolcoath was responsible for spending £140,000, the lion's share of which passed through businesses in the neighbourhood in the shape of wages and for the purchase of materials. This money circulated for the most part among the town's industries, from large engineering works to small shops, and it really represents an irrigation of credit much greater than the sum itself. As it is, without taking into account the repeated payments it represents, it is equal to £45 per family, and no such sum can be withdrawn without striking a serious and lasting blow at the prosperity of the district.

Twenty-five Years' Record.

During the 25 years the present company has been in existence it has, in this way, spent over 2½ millions sterling in working costs, and has divided profits amounting to over £700,000. The amount realised from ore brought to "grass" has been £3,477,453. The lord's royalties have totalled no less than £189,000. If judiciously fostered, there is absolutely no reason why Dolcoath should close down, probably for ever. There are prospects in various parts of the setts in the possession of the company which mining men of a century ago would have joyously seized upon and translated into profits. The arguments which would have let the mine come to an end in 1895 are the same as those which are now quoted to show that the mine is worked out. In those days, as in these, the operations of speculators were responsible for the slump in tin, and on all sides the Cornish mines began to tumble down like houses of cards. Outside people, however, were prevailed upon to put large capital into the mine, a new limited company was formed instead of the old cost book one, and it became so highly prosperous that from its inception, and for 20 years thereafter, it never made a loss, and usually a profit well in the tens of thousands. On some occasions, indeed, it made from £60,000 to £80,000 in a year. What has been done can be done again, for no Cornish mine was ever worked out yet, and there is a large quantity of unexplored ground which simply teems with potentialities. All that is required is that fresh capital be found, and that, as a preliminary, the Government come to the rescue to enable work to be continued meanwhile.

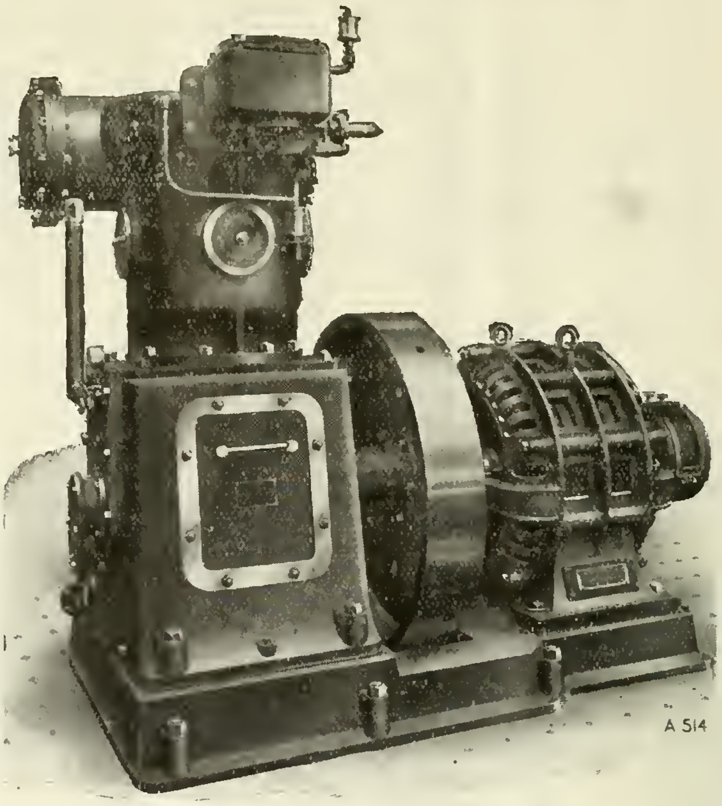
The Defence Committee.

The meetings held at Redruth and Camborne for the purpose of organising a Cornish Mines Defence Committee were largely attended and very successful. There is no doubt that several mines are already in the throes of dissolution, and unless help is promptly forthcoming there will be yet others over which may be set the words: "Killed by Government interference and neglect"—interference when it abstracted £400,000 per annum from the mines by a black control instituted to further a bargain with America in relation to copper, and neglect when it refused to give reparation, or to do anything worth while, even to the extent of preventing the dumping of 2,000 tons of Dutch tin in Wales. The Cornish miners are a long-suffering and patient race, but the present agitation for just treatment is taking a strong hold upon them. They are convinced that the industry has been extremely badly treated, and that they have all suffered in pocket, while many of them are now out of work or will shortly be out, as a result.

National Trading Co.,
54-58, CULLINAN BUILDINGS,
JOHANNESBURG.
Box 2762. Telegrams: "Gloria."

STOCKS OF

SHOVELS and SPADES.
DRILL STEEL.
RUBBER CONVEYOR BELTING.
LEATHER, BALATA and RUBBER DRIVING BELTS.
"PIONEER" and "FISHBRAND" OILSKIN SUITS.
WIRE ROPES.
OXY-ACETYLENE WELDING and CUTTING PLANTS.
ENGINE and SHEET PACKINGS OF ALL KINDS.



"SENTINEL" AIR COMPRESSORS
Large Stocks carried in South Africa, ready for immediate delivery, Steam Driven or Belt Drives.
SOLE AGENTS:
THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

OUR SPECIALITY!
(NOT TO BE BEATEN).

MAGNETOS
! F. HOPPERT. !
MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:
Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

The Great Iron Industry—The Labour Question—Timber, Iron and Building Material—Sharp Drop in Galvanised Iron—Blue Building and Plastering Lime—Iron and Steel—Electrical Goods—Bank Rates.

[*By a Special Correspondent.*]

The great outstanding feature of the week has been that our Parliament has adopted the agreement with the Pretoria Iron Mines, Limited, to purchase 50 per cent. of the Government Railway requirements for a period of 17 years. Since the Pretoria Iron Company opened their first blast furnace, accompanied by a very optimistic speech by the Chairman, the industry of pig-iron making has gone along very slowly indeed, but certainly very persistently, thanks to a few enthusiasts at Pretoria, who have expended their energy and money very freely indeed. They made a few small exhibits and kept the concern alive very industriously. It was found, however, such a big undertaking that their ideals could not well be carried out without some assistance from the Government. To make a comparison, it was a long way between the 5-stamp mills of 1887, as compared with the colossal gold mines, say, of the Modderfontein Groups. It is an appropriate illustration, because the deep level mines cannot be started without several millions of money, and similar millions are required for an up-to-date iron and steel industry. Although this Journal is opposed to anything in the nature of a monopoly, it is encouraging to note what has been done in other Dominions. Take Canada, for example. There were employed 58,842 men in 849 iron and steel works, producing £25,000,000 in the year 1915. That information should set our hearts rejoicing, if only for finding employment for the thousands and thousands of promising young men who will be turned into the world seeking something to do. Australia has a somewhat similar tale to tell, and may be other British Dominions which have taken up the manufacture of iron in very earnest.

THE LABOUR QUESTION.

According to the latest cables there are 6,000 unemployed in Cardiff on account of the lack of ship-repairing and the restricted production in the Welsh coal trade It is said that much of these repairs is being diverted to Rotterdam and Antwerp, where wages are cheaper and the people are anxious for work. During the War Cardiff enjoyed great prosperity but in the after-War period production was not handled with prudence by the workers, and trade has inevitably sought cheaper outlets elsewhere, which is the inexorable law of supply and demand. A turn for the better has taken place in the Sunday strike of the engine drivers, which, at one time, looked very serious because the Chamber of Mines discontinued negotiations on the plea that the engine drivers had broken their agreement.

As regards the poor whites, there was a meeting of farmers the other day where it transpired that the farmers seem loth to employ poor whites, as more money had to be paid, as compared with the natives, and better housing accommodation had to be provided. Then there was the question of schooling as well as the doctor and, further, it was maintained that the farmer, when necessary, on account of the weather, etc., could hustle the natives, whereas the poor whites very much objected to it. There is a great deal of truth in all this, because experience shows that one or two whites are sufficient to work with a gang of natives.

TIMBER, IRON AND BUILDING MATERIALS.

There is a great influx of galvanised roofing iron into Johannesburg, so much so that big quantities are being sold down to 1s. 3½d., as compared with the landed cost of 1s. 5d. The ordinary wholesale rate is 1s. 5d. for big quantities, which is certainly low as compared with 1s. 6d. last week. This is extraordinary, to say the least, as merchants are pretty unanimous in exclaiming that the prices are continuously going up in the factories. According to the official bank reports, as well as the London "Times" Trade Reviews, prices are anything but stable in Great Britain, as many orders have been cancelled of late. As regards timber, there is plenty of all kinds of timber in Johannesburg, having recently arrived from the coast, where there is plenty more awaiting transmission. Deals, 3 x 9, 2s. to 2s. 1d.; scantlings, 2s.; floorings, 10¼d. to 10½d.; ceilings, 7¼d. to 7½d. Business for timber on the Commercial Exchange is quite fair, as the up-country places are anxious to fill up with deals. Hardwood quotations: Burma teak, first quality, 1 x 12, 24s. 6d. to 28s. per square

SOUTH AFRICAN RAILWAYS AND HARBOURS.

Applications are invited for the position of Manager of the new Steel Foundry now in course of erection at Pretoria.

Applicants must have a thorough practical experience in the manufacture of steel castings by the "Tropenas" process, have a thorough knowledge of the working of modern annealing furnaces, core stoves, shot blast, plant, etc., and must have a thorough analytical training and be capable of taking entire control of the Steel Foundry Laboratory in addition to the Steel Foundry.

Applicants should communicate direct with the Chief Mechanical Engineer, Pretoria, from whom full particulars can be obtained.

Johannesburg,
26th July, 1920.

W. W. HOY,
General Manager.

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and

Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

foot; second quality, 20s. 9d. to 21s. 9d., depending upon specification; Japanese Oak, 1 10 in inch, 1 11 in 2 inch thicknesses, 1/2 inch, 1s. 0½d., all at coast. Prime quality black walnut, in inch boards, 2s. per square foot; prime quality American Oak, 1 inch upwards, from 1s. 9½d to 1s. 11½d., according to specification; 2 inch ditto., 1s. 10½d to 2s.; select American Oak, 1s. 5d.; prime ash (Japanese), 1 inch to 2 inch, 1s 6d. to 1s. 7½d.; poplar, prime quality, American, 1 x 12 and upwards, 2s. per square foot; seconds, 1 x 4 and upwards 1s. 1½d; Yeng, 16s per cube; pynkodne, in planks, 15s. a cube.

As regards the market, prices are not on the lower grade, but on the higher; timber is not going lower, but is inclined to rise. Advices from merchants at the coast state that the price of timber will increase by the 6 per cent. drop in the exchange.

BRICKS.

For the best wire-cuts and pressed bricks, quotations are about the same, with guaranteed delivery within a week or so as compared with a month or so a short time back. Best stock bricks are about 75s., but the second and other qualities can be picked up as low as 40s a thousand.

BLUE BUILDING AND PLASTERING LIME.

Trade in this section has been quieter of late, although there is always a steady demand for good quality lime. Contractors have been experiencing trouble with inferior lime, which is being sold promiscuously all over the reef. In some instances jobs have been condemned by the architects, and in others, where plastering has been done with plaster lime of doubtful origin and coarse in nature, the walls have blistered and builders are now getting cautious when purchasing their supplies. The inferior lime is either of a light greyish white colour, or of a very dark slate, and is usually packed in smaller bags and sold below the standard price of 4s. 9d. and 5s. 9d. per bag respectively. In order to avoid any unnecessary trouble, lime should be purchased direct from a works of standing or some reputable firm The works outside Krugersdorp are now producing, and although their output has been somewhat curtailed through want of sufficient labour and minor adjustments to their plants, they expect to produce a good quantity by the end of this month Several mushroom concerns have sprung up in the district, but are lacking in machinery. The dolomite is burnt in old-fashioned kilns in which plenty of clinker, obtained from the neighbouring mines, and very little coal is used. The sieving is done by hand, and the sieves have a mesh of about 64 to the square inch, whereas the standard quality of building lime has to pass a mesh of 200 to the square inch. The deficiency of this lime will, therefore, easily be recognised.

The demand from the country is fairly steady, and a few new districts are using blue hydraulic lime in lieu of white lime, and in some cases instead of cement, owing to the scarcity of the latter material.

IRON AND STEEL.

A hardware merchant says that things are very quiet on the Commercial Exchange and elsewhere, but prices are about the same. People were inclined, in view of the Polish-Russo embroglio, to wait and see whether things are fixed up—or war. The present standard price list of hardware is higher than during the War, and owing to raw materials advancing, it is difficult to forecast business, and the necessary indents, especially as the clause adopted by manufacturers that the price is subject to that ruling on date of delivery, is more rigidly observed; therefore, local tenders cannot be given without too great a risk. Another merchant says there has not been that amount of buying on the Commercial Exchange which was expected, as the mines are still holding back. The drop in the London Exchange made things worse for importers. Imported mild steel, 37s. 6d. to 42s. 6d. for some of the the smaller sizes; wire nails, 52s. 6d. to 65s.; drill steel, 7½d. to 8d. lb., hollow, 1s. 3d.; shafting, 7½d. to 8½d.; wheelbarrows, 75s each; shovels still firm up to about 75s. a dozen; brass, 1s. 9d. and 2s.; plates, 2s. 6d.; picks, 2½ and 3 lbs., 37s. 6d. doz, 4 lbs., 45s., 6 lbs., 63s. 6d., 7 lbs., 72s. 6d.

ELECTRICAL GOODS.

Business in this section still remains in the doldrums, as no outstanding orders, apart from the general run of repairs, etc., are coming in. Materials are arriving here freely, and with the exception of pear pushes and rosettes, as mentioned already in these notes (which are still unprocurable), all requisites are now fully stocked. Prices remain much about the same, with, however, a lower tendency. Slackness is now the predominant note in transactions, both in town and country, attributable, as one important dealer thought, to people being scared at the recent strike and generally to the unrest apparent during recent weeks.

HUME PIPE INDUSTRY.

The factory is working steadily and all the machines are working more than full time in order to cope, as far as possible, with the orders on hand. The matter of increasing the plant is one of great urgency, as the present installation, although since the inception of the company it has been more than doubled, almost trebled, is only able to keep pace with orders for an inconsiderable time.

BANK RATES.

From August 4th: Selling rates are, ¾ per cent. premium for telegraphic transfers and drafts; buying rates for telegraphic transfers, par; and for drafts, ¾ per cent. discount. London rates are accordingly altered, viz., for sight buying drafts, London to South Africa, 1¼ per cent. discount, selling (London) par, and telegraphic transfers 1¼ per cent. premium.

SOUTHERN VAN RYN

Some good reasons for investing in this great OUTCROP mine on the Van Ryn and Nigel Reefs:—

(1) The Mine is unique in the world's greatest goldfield.
(2) 2,146 Gold Claims entirely owned by Shareholders—no Government share of profits to pay.
(3) Over £40,000 cash in hand and new working capital continually being paid in.
(4) £50,000 worth of plant, equipment and stores all paid for.—No debentures and no debts.
(5) Two pay reefs to draw from, whose steep dip means large tonnages and cheap mining. The Nigel Company earned nearly a million profit on the Nigel Reef alone, from about one eighth of the number of claims on the Nigel Reef owned by Southern Van Ryn.
(6) Will begin gold production in October from the 30,000 tons of pay reef already developed.
(7) 5,000,000 tons of good coal on the property, which can be mined at 3s. per ton. This coal is already supplying power to the gold mine, and is alone worth more than the Company's capital.

Buy while the market is low for the rise which is coming; or, better still, buy to hold for dividends, in

THE COMING GREAT MINE OF THE FAR EAST RAND!

For further particulars write or apply to the Managing Director, Mr. W. E. BLELOCH, 3, Transvaal Bank Buildings, Fox Street, Johannesburg.

General Mining and Finance Corporation, Limited.

(Incorporated in the Transvaal.)

P.O. Box 1242. General Mining Buildings,
Johannesburg, 26th July, 1920.

NOTICE IS HEREBY GIVEN that the Twentieth Ordinary General Meeting of Shareholders of the General Mining and Finance Corporation, Ltd., will be held in the Board Room, General Mining Buildings, Johannesburg, on THURSDAY, the 2nd day of SEPTEMBER, 1920, at 11 a.m., for the following purposes:—

1. To receive and consider the Balance Sheet and Profit and Loss Account, and the Directors' and Auditors' Reports for the year ended 31st December, 1919.
2. To elect a Director in place of Mr. Martin Luebeck, who retires in terms of the Articles of Association, but who is eligible, and offers himself for re-election.
3. To appoint an Auditor or Auditors for the ensuing year, and to fix the remuneration of the retiring Auditors.
4. To transact any other business which ought to be transacted at an Ordinary General Meeting.

The Share Transfer Books of the Corporation will be closed as follows:—
(a) At the Head Office from the 30th of August to the 16th of September, 1920, both days inclusive.
(b) In London from the 30th of July to the 7th of August, 1920, both days inclusive.

Holders of Share Warrants to Bearer desiring to be present or represented at the Meeting should deposit their Shares at the places and within the times following:—

Johannesburg: At the Head Office of the Corporation, General Mining Buildings, **at least three days before the time appointed for the holding of the Meeting;** or

London: At the London Office (Transfer Department), Winchester House, Old Broad Street E.C.;

Paris: At the Paris Office, 29, Rue Taitbout; at the Bank de l'Union Parisienne, 7, Rue Chauchat; **at least thirty days before the date appointed for the holding of the Meeting.**

By Order of the Board,

H. W. DALTON,
Secretary.

The S.A. Mining & Engineering Journal

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891. ESTABLISHED 1891.

VOL. XXIX., PART II.] JOHANNESBURG, TRANSVAAL, AUGUST 21, 1920. [No. 1508.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Mining Notes and News ... 623
Editorial:
Our Daily Bread ... 625
The Future of the Rand ... 626
A Third-of-a-Century Ago ... 629
Developments on the "P.Q." Band ... 631
New Modder Annual Report ... 633
Katanga the Astonishing ... 635
Where Our Money Comes From and Where It Goes ... 637
South African Iron and Steel ... 639
Trade Unionism and Efficiency ... 641
Correspondence and Discussion ... 643
By the Way ... 644
Sport on the Mines ... 645
Modder B. Rugby Football Team ... 645
The Week in the Sharemarket ... 647
Trade and Industries Section:
The Week in the Mining Material and Engineering Trades ... 649

Mining Notes & News.

As we go to Press.

The latest price of gold is 114s. per oz. Transvaal Silver and Base Metals are the features of the market. There is much excitement over the platinum, iron and coal discoveries which have been made in the Cape Colony. The African Platinum Mines, Ltd., has been floated and we understand that £105,000 has been provided for working capital. The Graaff Trust, Mosenthals, and other influential down-country firms are understood to be interested. We learn that immense deposits of iron and of kaolin containing platinum have been opened up and the £1 shares of the company are being inquired for privately at £3.

* * * *

Pretoria Cement.

The Pretoria Portland Cement Co., Ltd., in the year ended with June 30th, 1920, earned a distributable profit of £139,865. This sum, together with the balance of £86,393 brought forward from the previous year, made available for disposal an amount of £226,258. This has been dealt with as follows: Dividends, £117,000; placed to reserve fund, £90,000; carried forward, £19,258. At the No. 2 factory (Slurry) the third rotary kiln was brought into commission early in May and is running satisfactorily. Orders have been placed for two new kilns and accessory plant.

* * * *

Crown Diamond Mine.

The results of last month's operations at the Crown Diamond Mine were as follow: Number of loads washed, 15,004; recoveries, 1,405½ carats of diamonds. A night shift was run during the month, with the result that the number of loads treated shows an increase. It is anticipated that the current month will show a still further improvement in this respect. The stripping of reef is also proceeding, but has been somewhat hampered by the shortage of native labour. The diamonds recovered for the month are a very fair parcel, and are of improved quality. The parcel includes stones of 16, 10½ and 9½ carats.

* * * *

That Iron and Steel Contract.

In regard to the leading article appearing in our last issue on the subject of the iron and steel contract, we have received a letter from an important reader of the paper in the course of which he says: "I must admit that the note struck in that article is undoubtedly the correct one and entirely coincides with the attitude adopted by Sir Thomas Smartt and his party, as well as Col. Creswell and his party, namely, that however small a man and his enterprise might be, his efforts are of as great value to the development of a country as are the efforts of large and powerful corporations, and that being the case, it is the duty of the Government of a country—especially such as ours, on the dawn of its industrial development—to afford fair competition and no favour in industry as well as in commerce. We should not allow our key industries, which are, all said and done, the foundations of our industrial existence, to become the battledore and shuttlecock of political ambitions and aims." We understand that some further important developments in regard to iron and steel in this country are probable.

Roberts Victor Diamonds.

The results of last month's tailings washing operations at the Roberts Victor Mine is as follows: Number of loads washed, 28,333; yield in diamonds, 3,039 carats. The diamonds are of a fair average quality.

* * * *

Coaling Position: No Immediate Improvement.

The coaling position shows no immediate improvement, as a result of the Minister's recent assurance to the House, but it is understood that negotiations have been proceeding this week between the Railway Department and the collieries by which the latter have been given assurance that more trucks and engine power will shortly be available and the collieries can therefore arrange for an increased output. It is estimated that 50,000 tons per month extra will thus be forwarded to the port. The present position is that there are 11,000 tons of coal in Durban, with which to supply 94,000 tons of cargo coal and 17,000 tons of bunker coal.

* * * *

The Week-end Strike.

Unfortunately the week-end strike of engine drivers on the Rand shows no signs of settlement at the moment of writing. The Chamber of Mines is standing fast in its attitude, and we trust that the Chamber will continue to stand fast. A paragraph, appearing in the official instructions issued by the Engine Drivers and Firemen's Association to its members on Monday, seems to indicate the possibility of a more serious development of the week-end strike when it comes into operation at the end of the present week. In effect the paragraph in question means that pumpmen and drivers who have been allowed to "carry on" for the purpose of keeping the mines clear of water on the earlier occasions of the strike will not work unless they get time-and-a-half. The position adopted by the Chamber of Mines is that such men will only receive the remuneration to which they are entitled under the agreement with the Association, that is, ordinary day's pay. If the drivers adhere to this attitude the same difficulty will arise as on the first day's cessation—there will be no men to man the pumps. This, of course, would result in a very serious situation, as the complete cessation of pumping would soon flood some of the mines.

* * * *

The Colour Bar.

There has been further debate on this important question in the House of Assembly. On Tuesday of last week Sir Jacobus Graaff told Mr. Drew that he feared the colour bar question would not again be discussed this year. Mr. Buchanan declared himself very much dissatisfied with this, holding that the coloured men were suffering from a recognised illegality, yet the highest Court in the land refused to deal with the matter. Some typical outbursts on the part of Labour then followed. Mr. Madeley proceeded to discuss the whole colour bar question, stating emphatically, amid Labour cheers, that the colour bar was the result of the action of employers, who wanted the coloured man to do the same work as the white man at a lesser pay than the white man. The Chairman pointed out that this was not the occasion to discuss the whole colour bar question. The case of Mr. Whitton was then raised by Mr. Madeley. Mr. Kentridge, continuing the argument and inquiry, said that the Minister should take steps to see to it that the colour bar not only as to work, but also as to wages, should be eliminated. Let them deal with the question on the basis of equal pay for equal work and pay on a civilised basis. Mr. Close suggested that the solicitude of Labour members had a great deal to do with the coming Provincial elections. The Minister said a certain clause in Government contracts regarding coloured labour was the same clause which appeared in the old Natal contract. Mr. Boydell declared that the clause had been inserted in Natal contracts as a protection against cheap Indian labour, but the coloured man had been perfectly free. All they or the Labour members aimed at was that the employer should be prevented from exploiting the coloured man at the expense of the white labourer.

Modder Deep.

The outlook at the Modder Deep Mine is still of the very brightest. Last month's profit was just on seventy thousand pounds and development exposures continue to be exceptionally good. A little while ago a small patch of poor ore was encountered, but this has now been penetrated and the ore on each side of it is of very high-grade quality.

* * * *

Pretoria Silver Lead Company.

We have been permitted to make a few extracts from the report by Mr. Oliver King on Shimwell's portion of Dwarsfontein, which is the property about to be floated into a limited liability company under the above name. The property is neighboured on three sides by holdings of the Transvaal Silver and Base Metals, Ltd. Mr. King says that the Shimwell lode is mentioned in an old report by W. H. Furlong, and he speaks of it as the most promising in the district and says that at a depth of 55 feet he estimates the value of the lode as 40 per cent. lead and 50 ozs. silver over 30 inches. Mr. King says the value of the property is based on: (1) Long stretches of the Shimwell lode. (2) Probability of a long stretch of the Brakfontein lode which has been developed right up to the boundary of Shimwell's farm. (3) Possibility of other lodes on the farm. Mr. King next refers to the workings made by Mr. Shimwell over a length of about 600 feet, from which he took a series of samples, which average over 32 inches: Lead, 27·1 per cent.; silver, 32·8 ozs. per long ton. At present values this ore is worth about £18 per long ton. He next gives assays of two samples of hand picked ore which are as follow: Lead, 77·3 per cent.; silver, 130·2 ozs.; value, £59 per long ton. Lead, 66·2 per cent.; silver, 80·9 ozs.; value, £43 per long ton. He gives the length of this lode as 5,100 feet. Regarding the Brakfontein lode he gives the average width as 31 inches and the assays he took gave: Lead, 10·33 per cent.; silver, 13·05; and zinc, 8·00 per cent. Of this lode he says it is strongly developed and clearly traceable to Dwarsfontein, where certain outcrops of lode matter are in the direct extension, and he is fully of opinion that these exposures are on the direct extension of the Brakfontein lode. In Transvaal Silver Mines the lode is proved to a vertical depth of 330 feet, and he thinks there is no risk in assuming that the Shimwell lode goes to an equal depth and that each level of the mine calculated at only 3 feet wide would give about 150,000 tons per level. Although he calculated only to a depth of 330 feet (the known depth) there is no geological reason why the lode should cease at that or any other depth.

* * * *

OUR FORTHCOMING RHODESIAN SUPPLEMENT.

"The South African Mining and Engineering Journal" will publish in the near future a special Rhodesian, Belgian Congo and Portuguese East African supplement, which will deal exhaustively with the mining enterprises and other industrial ventures of these territories. With this object in view a Special Commissioner of this Journal is leaving for Rhodesia at the end of this week, and will visit the principal centres of the territories mentioned in order to collect the latest first hand information on the spot. The supplement will be a most valuable and exhaustive guide to the position of the mineral industry in Northern and Southern Rhodesia, the Congo and Mozambique; regions which are full of promise for tremendous development, but of which comparatively little of an up-to-date nature is known in South Africa, Europe and America. The supplement will be copiously illustrated with present-day photographs, which will be taken by our special representative, and it will be replete with maps, diagrams and the latest statistics. The supplement is being supported by the Rhodesia Chamber of Mines and the Rhodesian Railways. The publication will provide an exceptional advertising medium for all who are interested in the enormous and steadily increasing trade of these territories. Advertisers and readers are invited to state their requirements to the business manager of this paper at the earliest opportunity.

EDITORIAL.

OUR DAILY BREAD.

The statements made by one of the leaders of the mining industry in an interview appearing elsewhere in this issue are certainly worthy of the most profound thought, and their importance to Johannesburg, the Reef and South Africa, cannot be over-estimated. It will probably come as an unpleasant surprise to people to learn than in less than 10 years' time the City Deep and the Crown Mines will be the only two gold mines at work between Randfontein and the Van Ryn Deep. That at any rate is our informant's view, and it is not a random prophecy, but an opinion based on the most careful and elaborate computations and on the very best and most reliable data available. What then is to be the future of Johannesburg? About fifteen months ago this question was asked by a special correspondent of *The South African Mining and Engineering Journal*, who in a remarkable article, which attracted much attention and which many people severely criticised, predicted that the Golden City was within measurable distance of decay on account of the exhaustion of the mines in its immediate neighbourhood. Since the appearance of that lugubrious letter the gold premium has stepped into the breach and temporarily saved the situation. Johannesburg has enjoyed a period of prosperity such as it never before has known. But in our affluence and the daily hurly-burly of money-making we are overlooking the stern realities of to-morrow. "We are merely being swept off the rocks of perdition by the trade winds of the gold premium," said a leader of the industry to us during the week. The gold premium will not last, and within half-a-dozen years of its disappearance, probably in two years' time, the epitaphs of all but two of the mines of the Central Rand will have been written. Johannesburg lives on its gold mines. The gold mining industry is our daily bread, and what will happen to us when that bread disappears is a subject worthy of the deepest meditation. One view is that most of our inhabitants are going to migrate to the Far East Rand, where a new Johannesburg greater and more glorious than the first is to arise, and on the reflected splendour of which the remaining residents of old Johannesburg are going to exist. But this view receives a rude check in the very important statement made in the Government Mining Engineer's report by Colonel Bottomley, Government Inspector of Mines for the Boksburg District. In the course of this report Colonel Bottomley says: "The past year has witnessed a steady expansion in regard to mining, and what may be termed a feverish activity in building and real estate speculation, which has been only partially restrained by scarcity of material and labour troubles. This building activity is based entirely on future prospects of the long dormant mining areas which are now being opened up, and those which are expected to be dealt with in the near future. Extravagant prophecies are being freely ventilated, and there are those who dream of a second Johannesburg at Springs. Although the expectation of considerable expansion appears to be amply justified, I do not consider that the present available data are sufficiently convincing to justify any extravagant forecasts. Johannesburg is the centre of control of the 'Far East,' and it is not likely that such control will be decentralised. The reefs of the 'Far East,' excluding the Modderfontein and State Mines areas, are not to be compared with the reefs of the Central Rand, and, claim for claim, they fall very far short. This can be accounted for in the difference in average payability, combined thickness of reef matter, and dip. It is not generally realised what the difference is in the average milling tonnage per claim as between the Central Rand and the Springs area. If we take the old Jubilee, Bonanza and Ferreira-Worcester as representative mines on the Central Rand we find that the tons of ore extracted and milled per claim from these mines, in the order mentioned, averaged at 102,000, 70,000 and 67,000. On the other hand the milling tonnages per claim from Springs Mines and Geduld average 7,200 and 7,700. Daggafontein, with selective development, does not appear to hold out any more promise than Springs Mines, while the Nigel, which is on the southern extension of the same reef, has only averaged 1,200 tons per claim according to past records. Payability is dependent on costs, and though these are abnormally high at the present time owing to war conditions, indications do not give the assurance that they will eventually be reduced to pre-war days."

It does not therefore seem wise to bank on the Far East Rand to wholly save the situation when the Central Rand reaches the end of its tether. The cheerful optimists will exclaim: "Oh, we've heard this story before often and often. The mining houses are crying stinking fish again just because it suits their purpose to do so. They want capital for new outlying enterprises, and this is one of their methods of attracting the public purse to other fields which they are going to exploit on a strictly ground floor basis. Johannesburg will always be the headquarters of the mining industry. Johannesburg is a great distributing centre, and there are scores of industries springing up in our midst." We most sincerely hope that this view is a correct one, but we must say that we find it extremely difficult to find the subsidiary industries in our midst which will absorb the hundred thousand people who are directly and indirectly dependent on the mines of the Central Rand, which it is predicted will all, with the exception of two, be idle in less than a decade from now. The smaller industries do not, we believe, employ many white men, and it is probable that few of them will survive the paralysing effects of the blow which will be dealt them when the Crown Mines and the City Deep are the only two mines at work between Randfontein and Benoni. The general public do not, we think, adequately realise the gravity of the situation. The wind of the gold premium has swept people off their balance. But there are numerous instances of a big mining camp declining to the proportions of a hamlet in consequence of the exhaustion of the gold mines clustering around it, which should be given sober thought to by the people of Johannesburg. Take Western Australia for example. In 1892 gold in almost incredible richness was discovered in Coolgardie. From a collection of huts Coolgardie developed into a solidly-built town of 16,000 inhabitants, with a water supply brought from Fremantle, 330 miles away. But its glory has departed. There is now a population of only 300. Few of the mines formerly worked are now in operation. Our salvation lies in the exploitation and development of the outlying districts, development on sound and legitimate lines free from the taint of monopolies and trusts and distrusts. We believe South Africa to be the most richly mineralised country on the face of the earth. Our coal and iron and base metal resources are stupendous, and if we accelerate their development in the best interests of the country Johannesburg will still remain the centre of a great mineral industry, and moreover of an industry that is going to last. We repeat that herein lies our salvation, for we shall not be able to live on the past glories of exhausted mines or on the present spectacular splendour of the eastern annexe of these gold fields.

Geduld's New Shaft.

At Geduld's new shaft sinking operations are progressing satisfactorily. Operations are, of course, being affected by the mine engine drivers' strike, but sinking has got to the normal stage and some excellent monthly footages are anticipated.

* * * *

A Big Mineral Find in the Cape Province.

In our last issue we announced that important mineral discoveries had been made in the Cala district of the Cape Colony. We now learn that a private company, with a capital of £55,000, has been floated to develop a platinum proposition in the neighbourhood of Cala, the assay of which, from samples taken from over a large area shows an average of 15 dwts. In addition to this extremely valuable metal, coal and iron, both of good quality, have been discovered extending over a large area in this district.

THE FUTURE OF THE RAND.

EXCLUSIVE INTERVIEW WITH A LEADER OF THE INDUSTRY—"TRADE WINDS OF THE GOLD PREMIUM AND THE ROCKS OF PERDITION"—DISASTER WHEN THE PREMIUM FALLS?—TWO MINES ONLY OF THE CENTRAL RAND WILL SURVIVE—THE CHAMBER'S ERROR—WHAT WILL BE JOHANNESBURG'S FATE?—MANY DIFFICULTIES AND NUMEROUS ECONOMIES—THE TYRANNY OF LABOUR—THE INDUSTRY "UP AGAINST IT."

"We are merely being swept off the rocks of perdition by the trade winds of the gold premium." In these striking words a leader of the mining industry expressed himself to the Acting Editor of the *South African Mining and Engineering Journal* during the week.

A Brief Retrospect.

The present position of the gold mining industry of the Witwatersrand is exceedingly interesting. We have weathered the War period only to find ourselves perilously close to the rocks of disaster. Our after-War hopes have not materialised. Increased wages and shorter hours, abnormal prices for stores and material, poor labouring efficiency, strikes, and the virtual exhaustion of many of our older mines are the stern realities which stand grimly in the places of the many cherished illusions which we held would materialise in the wonderful days of *après la guerre*.

The old Central Rand section of the greatest gold fields the world has ever known or ever is likely to know has been on the brink of disaster, and were it not for the development of the Far East the industry of the Main Reef series, taken as a whole, would have been slightly less profitable than a decent cray fish factory. The trade winds of the gold premium swept us away from the reef of disaster rather over twelve months ago. For a while the ship of industry sailed on summer seas. But after a time the breeze of salvation dropped, the gusts of gold realisation charges and the tempest of labour demands swept the good ship "Witwatersrand," with a quarter of a million lives aboard, back towards those rocks of ruin. And then, not a moment too soon, the trade winds blew again out towards the sea of prosperity. But the rocks remain.

Will the Industry Survive?

Shall we avoid them? *Can* we avoid them? How long is this beneficial breeze of the gold premium going to blow in our favour, and what is going to be its intensity? And when it drops, as it will drop sooner or later just as surely as night succeeds the day, what is going to be our fate? Will the Rand last? Will Johannesburg last? These are questions which every thinking man in this town, along this golden sixty miles of reef, and throughout South Africa asks, and his queries go unanswered.

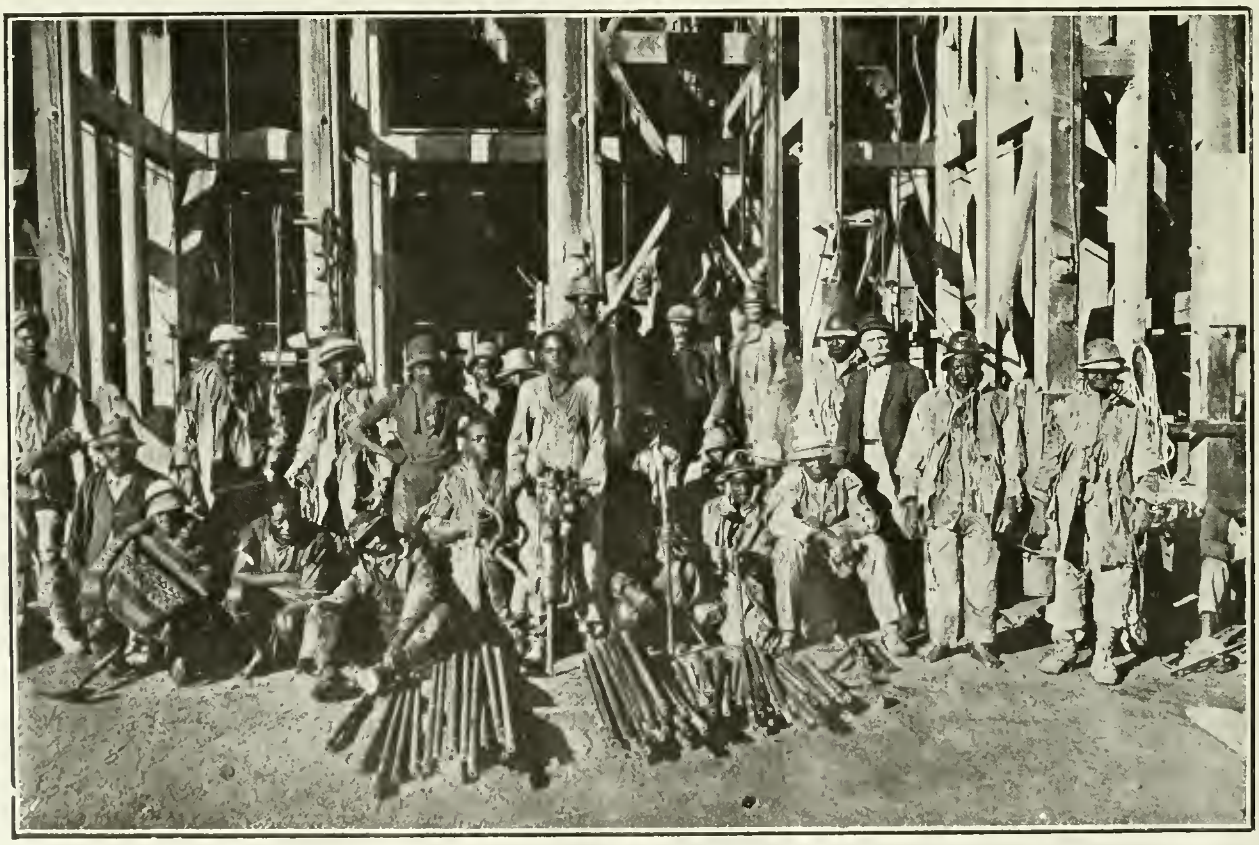
The View of Authority.

With a view to obtaining the best information available on the subject, we approached one of the leaders of the mining industry during the week. This captain of our ship is not infallible. But he is in the inner councils of the big houses. He is a man of thought and action and of wide experience on the Rand and his views are probably as sound as it is possible to obtain.

"That is the position," he said in reply to our general question, "we have been swept off the rocks of perdition by the trade winds of the gold premium."

"And how long will the premium last?" we asked.

"That no man can say. But it seems probable that gold will sell at a fluctuating price above the old standard value for another two years."



The Brains and Muscle of the Industry, on whom the future of the Rand largely depends, and who in turn depend on the Rand. A typical group of Rand White and Coloured workers at a Rand shaft head.

"And when gold gets back to normal, what then?"

"Within six years of the disappearance of the premium there will be only two mines—Crown Mines and the City Deep—working between Randfontein and the Van Ryn Deep."

"And what is going to happen to Johannesburg? Are we going to live on the reflected glory of the Far East Rand, or what?"

"No, I don't think we are going to live on the reflected glory of Springs or Brakpan, as you put it. Candidly, I don't see what Johannesburg is going to exist on unless we build up new industries. People talk a lot about industries other than mining in and around this town. But where are they and how many of them are there? At any rate, I can't believe they are big enough to absorb the people who will be out of employment when the City Deep and Crown Mines are the only properties at work between Randfontein and the Van Ryn Deep."

The Daily Bread of the Rand.

"I believe it has been calculated that every white man employed on the mines means direct and indirect employment for 5·7 people. Let us put it at five only. If fifteen thousand men are discharged by the mines it is very easy to arrive at the conclusion that a further 75,000 persons will be out of employment. Johannesburg won't be able to absorb them. An aerated water factory can't absorb 75,000 people, neither can a hat and cap factory. On the contrary, small industries will decline with the mines. It is true Johannesburg may become a big distributing centre, and it is to be presumed that administrative control will remain here. But that will not save the situation. Johannesburg has no natural resources or raw material assets. It is not a port or a big railway centre, nor has it a trade-carrying river or lake. It is therefore absolutely essential that new industries must be opened up in other parts of South Africa in areas blessed with raw materials such as coal and iron. That is why big corporations are becoming associated with mineral enterprises in other areas of South Africa.

The Hope of the Rand, the Far East: New Shafts at West Springs.

King Coal to the Rescue.

"Consider coal, for instance. I am convinced that in coal the country possesses a far bigger asset than it ever had in its gold mines."

We agreed heartily with our informant on this latter statement and pointed out that the *South African Mining and Engineering Journal* had consistently advocated this view for a long time past.

"Well," continued Mr. ———, "that is the position. If we are not to face a period of acute depression and unemployment in a few years time we absolutely must develop new industries. For the gold mines of the major portion of the Rand are on the wane, and few people outside the actual management of the mines appreciate the immense difficulties with which we are faced.

The Tyranny of Labour.

"And difficulties are increasing. Workings are becoming more scattered and distant from the main shafts, and the difficulties of supervision are thus becoming intensified. Supervision in a mine is always a difficult matter. In a workshop or a factory a foreman can easily take in a bird's-eye view of the situation and keep his eye on the men under him. But in a mine it is vastly different and the value of supervision becomes less as drives and levels become more extended. It all comes back to the loyalty and efficiency of employees, and it is a sorry fact that in the past few years efficiency has declined to a lamentable degree. We have elaborate statistics which amply demonstrate this. We have, too, certain knowledge of the fact that the majority of our employees are tired and 'fed up' with Labour's tyrannical methods and inordinate demands and with the ceaseless strife, unrest and discontent which is fostered by modern methods of trades unionism. Take the present trouble with the engine drivers. The whole Reef is being dictated to by three or four extremists, but although the majority of the men are out of sympathy with their leaders they are afraid to question the wisdom of Labour's despotic orders. The Chamber of Mines is standing fast in its attitude to this latest demand of the Labour leaders. It has said 'No,' and it means 'No.' And if Labour persists in its present policy there will be a disaster. The issue will have to be fought out."

The Chamber's Mistake.

"It should have been fought out long ago," we argued. "We said so at the beginning of the year. It was a mistake to grant the men's demands for increased pay without reference to the selling value of the products of the mines. The Chamber should have adopted a basis of payment which was based on the price of gold, as has been done at Broken Hill in New South Wales, where pay is determined by the selling prices of the company's products of lead, zinc and silver."

"I agree with that," said Mr. ———.

"And is it too late to introduce such a system now?" we queried.

"Yes, I am afraid it is too late."

"And what is the outlook for reducing costs in other directions?"

Second-hand Machinery.

"We are doing all we possibly can. You must not think that we are idle in this direction. We are always endeavouring to introduce economies and are always ready to adopt any new sound money-saving appliances. For instance, we have recently adopted a new candle-holder shaped on the carriage-lamp design, which means a saving to one group alone of an immense sum per annum. The mines have also improved their control of second-hand machinery and the re-utilisation or salvage of waste material. We have improved our methods in this respect to such a degree that no second-hand machinery is purchased from outside dealers and merchants by the mines of the group with which I am associated, unless the article in question cannot be furnished by our second-hand machinery establishment.

Air Losses.

"Then, again, we are endeavouring to minimise compressed air losses in the mines. Our yearly expenditure on air is something colossal, but small leaks in an air pipe—they may only cover a square inch in many hundreds of feet of piping—are hard to detect. The average Rand miner of to-day does not worry himself much about such matters, and it therefore all comes back to supervision, and obviously there are limits to the amount of money that can be spent on supervision. We want more loyalty and better work from our employees. We want them to realise that the Rand provides their daily bread and your daily bread and my daily bread. We are adopting new efficiency schemes and methods of payment and bonuses on results with this object in view. But what can you do with men who threaten to close a mine down at the slightest pretext?

Water Troubles.

"It is the Chamber's policy to carry on, but we are 'up against it' the whole time. In the face of rising costs we are confronted with increased water difficulties. Take the Durban Roodepoort Deep, for example. The two mines adjoining it at outcrop—Princess Estate and Roodepoort United—are closing down. This means that the Durban Roodepoort Deep will have to incur very considerable expenditure in connection with new pumping plant. Then, again, the New Heriot is ceasing operations and the water from that mine will find its way into the Nourse, and the Nourse will have to pump it out.

"The position is a serious one. Sooner or later gold will get back to normal and prices will fall. But the selling value of our product will decline quicker than costs. And herein lies the danger. It is only the trade wind of the gold premium that keeps us off the rocks of perdition."

A Word to Our Readers.

These are thoughtful words and wise counsels. They are the outcome of much thought and experience by a leader of the industry who spends much time underground and who is in the closest touch with all developments and industrial perils. We therefore unhesitatingly recommend them to the notice of our readers, and particularly to those of our readers—capitalists and labourites alike—who are blinded by the glamour of that essentially ephemeral illusion which is called the gold premium.

The Lonely.

The following are particulars of gold, etc., from the Lonely Mine for the month of July, 1920: Mill ran 705 hours; crushed 4,920 tons; fine gold recovered, 1,943·905 ozs., value £8,178 0s. 5d.; slimes treated, 4,920 tons; fine gold recovered, 2,921·950 ozs., value £12,300 6s. 4d.; total fine gold, 4,865·855 ozs.; total value, £20,478 6s. 9d.; profit, £7,965 7s. 5d.

HEAD, WRIGHTSON & CO., Ltd., ENGLAND,

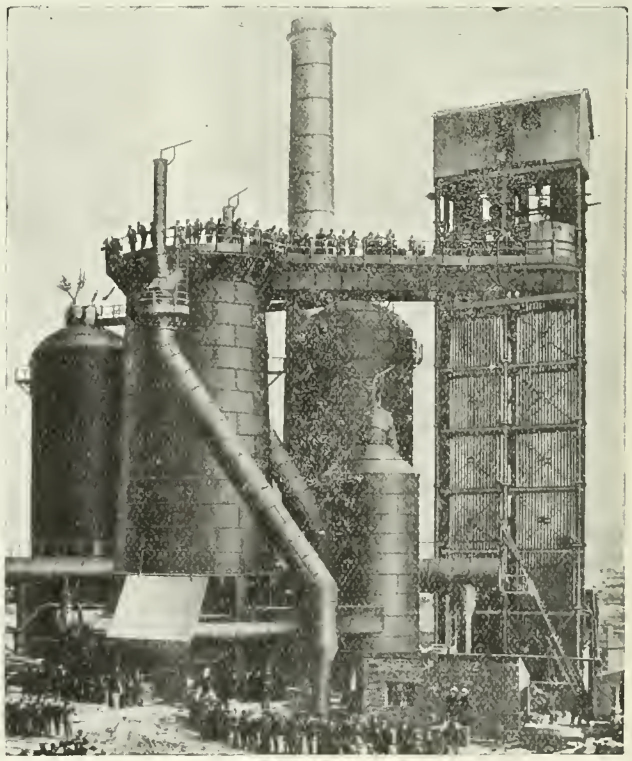
MAKERS OF COMPLETE BLAST FURNACE & STEEL WORKS PLANT.

THE first sod of this Blast Furnace Plant at **LITHGOW, AUSTRALIA,** was cut on **MARCH 10th, 1906,** and the Furnace blown in on **APRIL 29th, 1907.**

No erectors of any kind were sent out from England, but the work was so accurately made and put together in the contractors' yard that the building and erection of the whole of the plant was carried out without a hitch or accident.

The Storage Gantry for coke and ironstone with the Direct-acting Hoist and **WRIGHTSON'S** Patent Balance Drop are not visible in the view illustrated.

SOUTH AFRICAN OFFICE:
Standard Bank Chambers,
JOHANNESBURG.



A THIRD-OF-A-CENTURY AGO.

HOW THE RAND GOLD MINING INDUSTRY WAS BORN—PIONEER RECOLLECTIONS.

Just exactly a third of a century ago the auriferous conglomerates of the Witwatersrand began to astonish the world by their remarkable richness and widespread distribution. Much hard pick-and-shovel work was done in '86, but '87 was the "annus mirabilis" of these fields. Just 33 years ago the Rand began to make history, and the following recollections by a pioneer of those wonderful days when Rand companies were floated for £12,000 and a prospectus put the recovery value at 13 ozs. per ton are deeply interesting to us who live in these chaotic days of the low grade epoch.

More prospecting work was being done on these fields during the early part of 1886 than at any previous time, and it is not improbable that discoveries of the Main Reef were made at different points along the Rand by the various claimants at about the same time, *i.e.*, the early months of 1886. So far as the existence of the conglomerate beds is concerned, it would appear beyond question that the Boers who lived in the Witwatersrand district knew of them, since in many places their outcrops were prominent, and they could hardly escape observation. There seems little doubt, however, that Mr. Fred Struben was the first to recognise the auriferous nature of this banket formation, and he actually opened up one of the conglomerate beds in March, 1885, which by panning showed a value of about 5 dwts. per ton. He backed his opinion as to the value of the Witwatersrand district as a gold producer by several years' hard and continuous prospecting on both quartz and banket formation, and certainly his name will always be the most prominent one associated with the discovery and early development of these fields.

Mr. Jan Meyer's Part.

Besides being veldcornet for this district, Mr. Jan Meyer became the authorised agent for the owners of Doornfontein and Turffontein, and on their behalf granted rights to anyone to prospect on these farms at £4 10s. per claim for three months, and allocated to each his particular ground.

Mr. Meyer shortly afterwards was appointed by the Government as Gold Commissioner for the district, with instructions to grant Government licences at 10s. per claim per month. Having reported to the Government that the reefs here were rich enough to warrant their proclaiming the ground, he was requested to proceed to Pretoria, and there discuss the matter personally with the Executive. As a result a Government Commission was appointed consisting of Mr. J. Rissik and Mr. Christian Joubert to report on these fields. They inspected the work, going on all along the Reef, and sent in a favourable report to the Government in August, 1886, shortly after which Mr. Meyer received instructions to proclaim certain farms.

Mr. Meyer then sent to Natal and elsewhere information as to the recent discoveries made here, so that it was not long before people began to stream in. He has said that on many occasions, even when he returned to his farm at Klip River for the week-end, he would find as many as fifty new arrivals waiting for him there, anxious to get information and to forestall others in applying for claim licences.

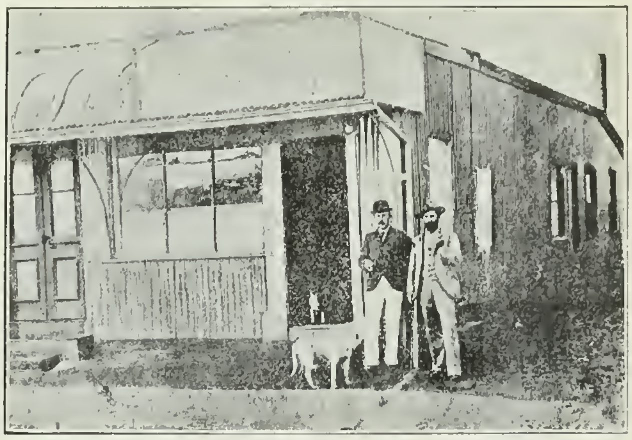
Beginnings of Our Press.

During the important year 1887 the first newspaper on these fields, the *Diggers' News*, was issued on February 24th. On the day following the first number of the *Transvaal Mining Argus* appeared. In the first issue of the *Diggers' News*, under the heading of "Mining Intelligence," we find the following:

"Prospecting on the Rand is increasing in vigour and importance every day. Great excitement has been created the last day or two over a discovery which has just been made on the farm Witpoortje, adjoining Roodepoort. A nugget of gold was shown on Saturday last, weighing 9 ozs. 7 dwts., and several smaller nuggets have been picked up on the same spot. The gold appears to have been found in the white quartz on a reef running nearly north and south. Upwards of 110 ozs. in nuggets of various sizes have been picked up on the farm within the last fortnight by the Harrington Company. Their *modus operandi* is to crush the white quartz, extract the nuggets, and, to use a vulgar expression, save the pieces, which it is confidently expected will yield a handsome return with the crushing mills.

Trial Crushings, 2½ ozs. per ton.

"The Henry Nourse Syndicate has finished its trial crushings, which show a result of 2½ ozs. to the ton. Mr. Barker is crushing 100 tons at Struben's mill from the quartz taken out of his claims on the Main Reef; the crushing is nearly completed, and the result bids fair to show nearly 3 ozs. to the ton. There was a rush on some abandoned claims at Elsburg early on Monday morning; the previous owner evidently not having a just appreciation of them, for which he will ultimately be sorry.



Telegraph Office in Johannesburg (Market Street) in 1887.

"The Bloemfontein Syndicate, who have twelve claims adjoining the Paarl-Pretoria Company's claims on Langlaagte, are about to form a company with 1,000 shares of £10 each; 400 shares will be retained by the Syndicate, and 600 will be placed before the public.

"The net yield of the 97 tons of quartz from Henry Nourse claims at Struben's Mill has been 1 oz. 9 dwts. 7 grs. The gross yield—11—of retorted gold was on view at the Secretary's office, Pretoria, last week.

The Wemmer Flotation.

"The prospectus of the Wemmer Gold Mining Company is issued. The capital is £12,000 in £1 shares, 2,000 of which are reserved for the Johannesburg public.

"There has been a great deal of speculation in stands during the past week within the business portion of the town, some changing hands at from £25 to £750, the latter being on the Market Square, near the Government offices."

The year 1887 saw the erection of many small batteries east and west, along the strike of the reef, and commencement of the rapid growth of the mining industry. Amongst the companies still existing which were formed and started work in the early days I might refer to the following:

Some Ore!

The Jubilee Gold Mining Company was floated and registered in Natal in December, 1886, with an original capital of £15,000. In the prospectus the owner is stated to have recovered 13 ozs. to the ton. On 11th April, 1887, this company started crushing with a three-stamp battery on Natal Spruit, which was increased to eight stamps on the 11th August of the same year. The ore was carted to the mill by means of Scotch carts drawn by bullocks, and the reef was so rich that the cart was lined with sacking.

Mr. G. H. Goch formed the Wemmer Gold Mining Company at Kimberley in January, 1887. He bought a five-stamp battery there which was on its way to Barberton, and sent it on by ox wagon with a 10 h.p. Hornsby engine and boiler, and had them erected at the Wemmer Pan, about a mile south of the mine, in May, 1887. An additional five stamps were shortly afterwards erected, which were originally purchased for the crushing of ore by another company called the Wemmer Extension, but which latter amalgamated with the Wemmer Company.

The Crown Reef was registered on the 8th March, 1887. Mr. Percy Whitehead took over the management and energetically set about exposing the reef by open cuttings. He sent to the Struben mill, a distance of some eight miles, 2,338 tons of ore, which yielded 2,991 ozs., an average value of 26 dwts. to the ton. This mine started crushing with ten stamps of its own in January, 1888.

Mines That Made South Africa.

The Robinson Gold Mining Company was formed and registered in 1887, with an initial capital of £50,000, of which only £5,000 could be appropriated for working capital. This was found sufficient to purchase and erect a ten-stamp battery, and some other small necessary appliances, and £3,312 11s. 8d. had to be borrowed for other requirements. Milling was started in January, 1888, with 10 stamps which ran to the middle of April, 1889, when forty new stamps were started. This is one of the premier mines of the Rand both as regards early production and mining profits. Up to the outbreak of the Boer War, the cash distributed in dividends amounted to £2,850,936. The capital of the company was increased in 1889 to £2,750,000, chiefly by the conversion of each original £1 share into ten £5 shares, and the cost of the equipment and proper development of the mine has principally been met out of profits.

The Ferreira Gold Mining Company was floated in March, 1887. A five-stamp battery was purchased in the Colony, and erected at Sans Souci, Auckland Park, by September. The ore was carted over to the mill across what is now Johannesburg in Scotch carts. An additional ten stamps were added about the beginning of 1888.

The Jumpers Gold Mining Company was floated in 1887. The original capital was £42,000, all issued, of which £15,000 was working capital. Early millings gave fabulously rich results, one crushing of 100 tons yielding 936 ozs. 8 dwts. At this mine the first 100-stamp mill on the Rand was erected.

The Langlaagte Estate and Gold Mining Company started crushing with ten stamps about December, 1887, which ran until March, 1889, when sixty stamps were added.

"Tempora Mutantur."

So much for the grand old mines that revolutionised South Africa and made history. It is deeply interesting to ponder on these old records. How times have changed since then! Gone are the days of the £12,000 company and the 9 oz. ore, and in their place we have an epoch of seven pennyweight stuff and companies with capitals running into millions.

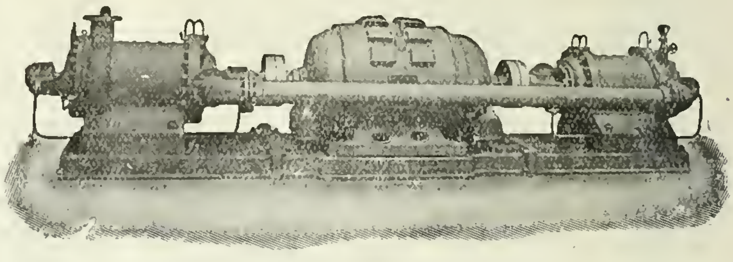
ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O Box 930 Telephones 2299 & 2300. JOHANNESBURG.
Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

DEVELOPMENTS ON THE "P.Q. BAND."

ENCOURAGING VALUES IN PYRITIC QUARTZITE BELOW THE MAIN REEF—IS THE MAIN REEF OUR FAREWELL ROCK?

Is the Main Reef really the farewell rock of the profitable auriferous belt of the Witwatersrand system? In our last week's issue Mr. Scott Alexander most emphatically said "No." Mr. Bleloch, too, says "No," and there are numerous others who believe in the value of a northern series.

A Footwall Zone of Payability.

Nowadays a great deal of importance attaches to the "P.Q." (so called by the miners for the pyritic quartzite) gold horizon which is being worked on several of the mines on the Central Rand, and which promises to add considerably to the tonnage, especially to those mines which have been regarded as having a short life.

In a Main Reef Series Stope.

The "P.Q." Band which underlies the Main Reef is being opened up at numerous points with good results.

This zone is found underlying the Main Reef Series at variable distances, and occurs as a pyritic band in blackish quartzite, and carries values from a few pennyweights up to over an ounce over a good stoping width, in several mines averaging about 10 dwts.

There is a white quartz leader underlying this zone, and it appears that below this the values do not exist, so that stoping can be confined to a given horizon, without the occurrence of the usual pebbles which accompany the gold-bearing reef so far worked.

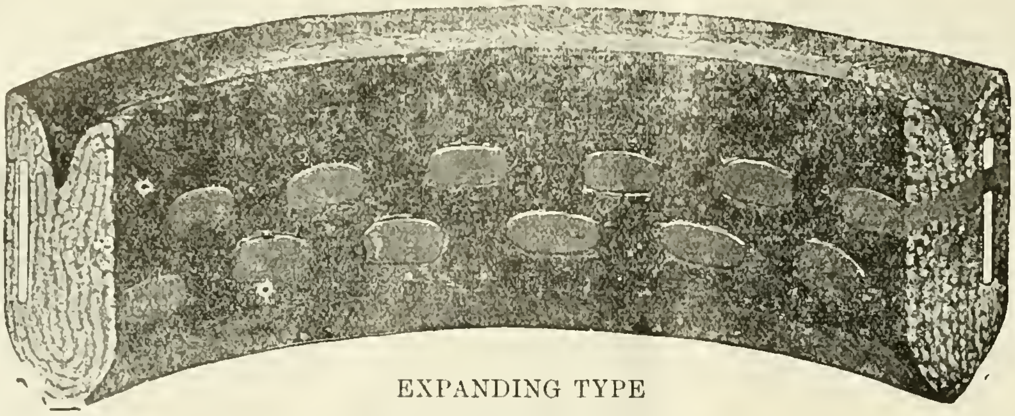
The Meyer and Charlton has worked this pyritic quartzite and won profits from it. It is now being actively exploited at the Wolhuter, where its existence has been known of for some considerable time, but it is only recently that the Wolhuter management has given the occurrence much consideration. Results at several points are highly encouraging and the stopes on this ore body may substantially extend the Wolhuter's life.

We understand, too, that the "P.Q." band gives encouraging values in the Heriot and other mines.

An Encouraging Fact.

We do not anticipate that the existence of this band is likely to solve many of our low-grade troubles or indefinitely prolong the life of the Central Rand, but the fact that good values are being obtained from it at several mines is both interesting and encouraging.

— This —



EXPANDING TYPE

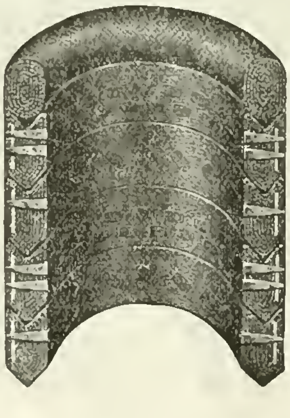
—it's the packing
you've waited for—

It's the packing that means your high pressure troubles are over—the one that means an appreciable cut in your packing bills—a packing that LASTS.

"Lion" Metallic Packing

"Patented"

See those metal studs. They present an entire metallic wearing surface. Inserted in packing they form contact with the rod at all points. They reduce friction—lengthen the life of the packing tremendously—eliminate scoring of the rod.



Even without those studs "Lion" is as good as any other packing. Made of the finest materials we can procure, it is acted upon AUTOMATICALLY — gives *always* a tight surface. But *with* those studs, "Lion" is *better than any other made.*

We'll prove that to you. We'll prove that you need "Lion" in your plant—in the difficult places, the ones that have made you lose faith in ordinary packings. Give us the chance. Ask for details NOW.

SOLE AGENTS—

C. Wharton Hood & Co. (S.A.), Ltd.

P.O. Box 6096. 'Phone 973.

Offices: SOUTHERN LIFE BUILDINGS,
HARRISON STREET, JOHANNESBURG.

THE NEW MODDER ANNUAL REPORT.

A Spectacular Document—Profit of a Million and a Half—Improved Development—The Mine Never In a Stronger Position.

The New Modderfontein Company marches on from one financial year of triumph to another. This property and the Government Gold Mining Areas constitute the world's two greatest gold mines, and the New Modder Company's annual report for the year ended with June last shows that the Company earned a working profit of £1,193,811 and a net profit of £1,518,188—in each case the largest ever recorded in the magnificent history of this great mine. Last year the New Modder distributed £1,155,000 in dividends, and the balance sheet shows the balance unappropriated at the end of June to be £311,025 13s.

Mr. Stuart Martin in his report states: "The mine is in a stronger position to-day than at any time in its history." Other important features in Mr. Martin's report are:—Comparative figures for the last three years are as follow:

	Year ended June 30, 1918,	Year ended June 30, 1919.	Year ended June 30. 1920.
Tons milled	681,100	920,500	968,500
Yield per ton milled (dwts.)	10·930	10·485	10·321
Yield per ton milled ...	45/7	43/10	43/2
Working costs per ton milled	21/3	20/2	21/11
Profit per ton milled ...	24/4	23/8	21/3
Profit at standard price of gold	£833,263	£1,089,891	£1,029,188
Revenue from premium on gold, less realisation charges and exchange	Nil.	Nil.	£464,657
Total profit	£833,263	£1,089,891	£1,493,845
Ore reserve (tons)	9,000,000	8,854,300	8,869,700
Ore reserve value (dwts.)	8·6	8·5	8·4

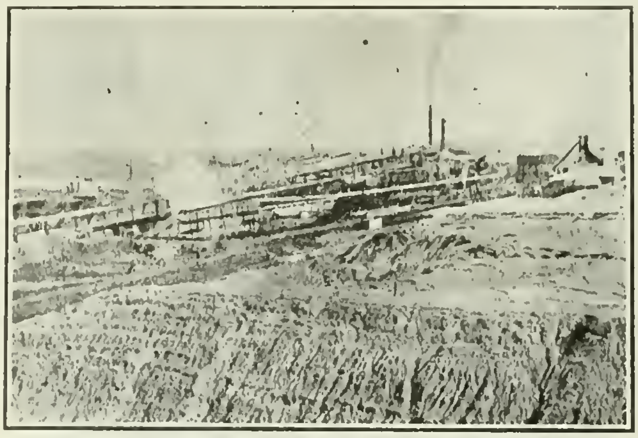
From the above it will be seen that the very large increase in profit for the year was due to the premium obtained from the sale of 499,786 fine ozs. of gold produced during the period, equivalent to an addition in profit of 9s. 7d. per ton milled. For the first six months of the year, a severe shortage of native labour was felt, and on this account the plant was not operated to its full capacity. Matters improved somewhat in this respect during the second half, enabling the tonnage milled to average 86,566 tons per month, as compared with 74,850 for the first half of the year. The average number of natives employed was 4,591, or 131 more than in 1918, the rated complement remaining at about 6,000. The yield, based on standard gold value, was fractionally lower, whilst working costs, due to higher wages, increased cost of stores, and causes outside the control of the management, were 1s. 9d. per ton higher.

Increased Development.

Development operations were considerably increased, the total footage being 17,449 feet, or 7,972 feet more than in 1918-19. It will be noted that about half the footage is developed ore, the remainder consisting of main haulage roads, crosscuts in and under stopes, ore passes, etc., all of which are designed for the more expeditious and economical handling of ore, and are in the nature of labour-saving improvements. The payable reef disclosures at 643 inch-dwts. were 16 inch-dwts. higher than for the preceding year. The payable ore developed is estimated at 1,113,800 tons of an average value of 10·1 dwts. per ton. The ore reserve revalued at June 30th, 1920, amounted to 8,869,700 tons valued at 8·4 dwts. over 67 inches of stoping width, this being inclusive of 389,700 tons valued at 7·1 dwts. consisting of shaft and boundary pillars. The stoping width over the whole reserve is one inch higher than in the preceding year, this accounting for the slight variations in tonnage and value of the ore reserve. The testing of upper leaders continued with, as a rule, favourable results.

A Happy Position.

The grade of ore mined was again somewhat above the average value of the reserve, in accordance with the policy of mining more in agreement with the value of current development than with the average value of the reserve. This has in no way endangered the security of the mine, the ore reserve being to-day practically the same in tonnage and value as during the last two or three years. The reasons for this happy position are (a) the actual results from mining have exceeded the value placed upon the reserve, (b) current development has opened up ore of higher value than the average of the ore reserve. Capital expenditure totalled £15,639, the chief item being the centralisation of the native hospitals of the mine, the Modderfontein B., and the Modderfontein East Companies, the balance being in connection with the completion of votes on account of the new plant. During the current year, the commitments on this account are for eight additional stamps, with some slime tanks, which will enable the reduction plant to increase its capacity by 10,000 tons a month, together with another 65 drill air compressor. The items are estimated to cost some £30,000, and will be quickly recovered provided sufficient native labour is procurable to produce the requisite tonnage.



A View at the New Modder.

Interviewed by a representative of the *Daily Mail*, the Oil Controller, Mr. Cadman, indicated that there would be no nationalisation of the Mesopotamian oilfields, which would be worked by the British as competitive concerns paying royalties, which would be earmarked for the benefit of Mesopotamia. According to the present plans the oil will be carried by pipe lines to the Mediterranean through Syria. France has already consented to this arrangement.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%,

Overseers.—25 Certificates out of a total of 37 in South Africa in 1920, Our passes during a recent 6 months (1919/20) were 95%.

Surveyors—Our new class obtained the only Certificate in South Africa, March. 1920, Examination. Over 60 successful candidates have received sectional or other tuition from us,

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

NOTICE.

PHOENIX PIPE AND METAL COMPANY
No. 6, LONDON HOUSE, LOVEDAY ST., JOHANNESBURG.

PIPING, ⅛in. to 16in., in Steam, Black and Galvanized.
VALVES, all kinds and sizes, also all Pipe Fittings.

CORRUGATED IRON, FENCING MATERIAL, TRUCKS, RAILS, ETC., AND GENERAL MACHINERY.
We carry large stocks of the above, in both new and second-hand, and solicit your enquiries. **TELEPHONE 1801, CENTRAL.**

"SHEELEY" TUBE MILL LINERS.

THE EFFICIENT LINER.

Sole Selling Agents:

RINTOUL & DAVIS,

23, Cullinan Buildings,

JOHANNESBURG.

KATANGA THE ASTONISHING.

Development of the Great Congo Copper Belt—Optimism Justified—The Eminent Engineer and an Unpublished Report—Cost of Present Programme £3,400,000.

When, just after the Boer War, the promoters of Tanganyika Concessions declared that their prospectors, led by the late Mr. George Grey, had located in the Katanga region of the Belgian Congo one of the greatest mineral fields on earth, the world merely smiled. But the smile is with Mr. Robert Williams and his Belgian associates to-day. In the face of enormous difficulties the moving spirits of the Union Minière-Tanganyika group have doggedly persevered, and the position to-day is that one of the greatest copper belts known—perhaps the greatest copper belt on earth—has been opened up, equipped, linked up with ports by railways, and brought to a state of production on an immense scale.

A Bit of Unrecorded History.

Not so many years ago a very prominent mining engineer inspected the Katanga copper discoveries, and made a voluminous report, which was of a decidedly pessimistic nature in regard to the production of copper from the Katanga Mines. This report came into the possession of the *South African Mining Journal*, and we sought permission to publish it. We were threatened with legal action if we allowed the report to appear in print, and the views of the very eminent engineer were therefore never published.

M. Jean Jadot,
President of the Union Minière du Haut Katanga.

Pluck Meets with its Reward.

The optimistic opinions held by the Union Minière-Tanganyika directors have since been fully confirmed, and the eminent engineer's premises have been demonstrated to be unsound in regard to the metallurgy of the great Congo copper belt.

The work that already has been carried out in Katanga is colossal; the magnitude of the development projected is simply staggering

The communication made to the general meeting of the Union Minière by the Council of Administration on July 12, 1920, states, *inter alia:* On the occasion of our last general meeting we gave you the reasons which prevented us from placing before you a balance sheet and statement of profits and losses for operations between 1914 and 1918. At that time we had only just got again in touch with our mining centre, from which we had been separated nearly five years.

General Remarks.

As we foretold in our last report, the year 1919 has been one of difficult transition. In fact, during the course of the year we had to reorganise the whole of our African service and fill up vacancies in our staff, insufficient in number and deficient in standard. This work of reorganisation, commenced in 1919, is still going on; we hope shortly to have our staff fully able to cope with the increasing developments of our operations. During the first half-year of 1919 the price of standard copper averaged £81, the price rising during the latter half of the year to an average of £100. But at the commencement of 1920 a great depression was felt (last June the rate was £82). This fall will affect a good proportion of our 1919 production, which could only be realised during 1920. On the other hand, many of our returns, especially for materials, salaries, and transport of fuel, have shown during the second half of 1919 a considerable upward tendency. Nevertheless, considering the numerous difficulties we have met, the results for these periods may be considered satisfactory.

Mining Reserves: Research Works.

As regards our mining reserves, we have been able to carry on prospecting and research by borings with some success during 1919. The results obtained, notably at Kakanda, Luushia, and Fungurume, confirm our favourable reports on the importance and position of the lodes. In view of a more complete examination of our mining domain, especially of mines on the west side of our concession, we have decided to double our prospecting staff and its outfit.

Mr. Robert Williams,
Managing Director of Tanganyika Concessions, Ltd.

Mining Centres at Work.

Three centres have been working regularly. These are the Star of the Congo (comprising the mines of the Star and of Ruashe), Kambove (comprising the mines of Southern and Western Kambove and M'Sesa), and Likasi (comprising the mines of Likasi and Chituru). The output of these three centres totals 876,000 tons of copper ore and 316,000 tons of dross—that is, a total of 1,192,000 tons. The copper ore obtained is classed as follows: Foundry ore, 189,000 tons; ore stocked for mechanical preparation, 360,000 tons; inferior ore for later treatment, 327,000 tons; total, 876,000 tons. Besides the above, three lodes (Kasumbalesa, Etoile, and Kakontwe) have fed our metallurgical laboratory, their output was 166,000 tons. The limebeds of Kakontwe have also been worked in June, 1919.

Foundry Supplies and Melting Ores.

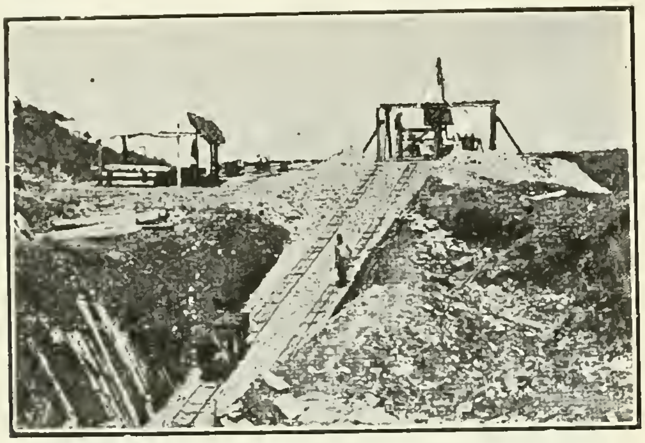
The output of the different centres of copper and melting ores is as follows:—Copper ores: Star of Congo, 36,000 tons; Kambove, 123,000 tons; Likasi, 30,000 tons; total, 189,000 tons. Kasumbalesa (iron), 85,000 tons; Star (dolomite), 28,000 tons; Kakontwe (lime), 53,000 tons; total, 166,000 tons.

Foundry Production.

The production of copper in 1919 amounted to 23,028 tons in ingots and matte, as against 20,238 tons in 1918. Of the seven furnaces of our foundry, four only (five at most) have been working. This slacking was due to a strike among our workmen in the month of May, as also to the lack of fuel. Owing to labour shortage and want of rolling-stock, the Wankie Collieries and Rhodesian railways, upon which we depended for coke and coal, were unable to supply our needs.

New Constructions.

As we announced in our last report, in order to assure our foundry being in perfect working order, we have begun the construction of a big factory for mechanical preparation, of a daily capacity of 1,000 tons of ore, where copper and other rich ores will be directly treated. This factory will comprise, besides the workshop for mechanical treatment itself:



Opening up the Katanga Copper Belt.

1. A railway of about 7 kilometres, double line; a terminus for distribution, with different branches and depôt for locomotives.

2. An electric centre, with two turbo-alternators of 5,000 kw. and a stand-by machine of 350 kw.

3. Hydraulic installation for supplying water to the turbines and for use in the treatment process, at the rate of 36,000 cubic m. per day.

4. Repairing shops, warehouses, offices, dwellings for white and coloured staff, and hospital for the sick.

The greater part of the material required for these works is in hand, and the constructions are already in an advanced state. In spite of delays in obtaining workmen and some few materials, the works should be in going order in the first half of 1921. At the same time, we have started a branch factory for the treatment of poorer-class ores, which will be ready at the same time.

Study of Waterfalls and New Projects.

In order to realise the vast project of utilising waterfalls for electricity and applying same for the production of electrolytic copper, mentioned in earlier reports, we have sent a number of technical specialists to Katanga to make a thorough study for the utilisation of waterfalls. We have also undertaken researches respecting the mineralised lodes in the neighbourhood of the falls of Lualaba. The railway company of Lower Congo at Katanga has also begun operations for linking up this important part of our concession with other lines.

Tin Mines.

The Busanga Mine, which was worked again in 1918, began to yield in 1919: we rely on an output of 50 tons of cassiterite monthly. Our tin concession is being worked regularly in the Kasonso district, notably at Kikole and Shienzi, and gives encouraging results.

Native Labour.

The situation in respect to native labour has improved: at the end of 1919 the workmen at our yards numbered 12,000, as against 6,000 in the preceding year.

A Huge Expenditure.

The present programme, planned to treat 1,000 tons of ore per day, includes, apart from the concentrator proper, very large accessories, notably extensive railway sidings and shunting station (60 kilomètres of track), houses for a numerous European and native staff, and also the development and equipment of the mines necessary to supply the concentrator when ready. At the end of 1919 we had expended on account of this programme about 60,000,000 francs, 35,000,000 francs of which were expended during 1919. On January 1, 1920, there remained to be spent about 75,000,000 francs. When the programme of new plants was proposed in London in 1917, the estimates amounted to about £3,000,000, equivalent at that time to 75,000,000 francs. Since 1917, and especially since the armistice, the prices of raw and manufactured materials have constantly risen, to such a point that our present estimate for the completion of the same programme is £3,400,000.

A View in Katanga.

Katanga and the Union.

It will be clear from the foregoing that the production of copper in Central Africa has become an industry of world importance, and although we in South Africa realise so little of the magnitude of the great work which is being carried on far away to the north, the Katanga industry cannot but exert an influence of steadily increasing importance upon our own affairs and our own commerce.

Mr. Owen Letcher, A.I.M.M., etc., Mining Editor of the *South African Mining and Engineering Journal*, who has been Acting Editor of the paper for the past fortnight, is leaving for Bulawayo this week-end in connection with the forthcoming Special Rhodesian, Belgian Congo and Mozambique Number of the journal.

ROYAL SCHOOL OF MINES FRECHEVILLE RESEARCH FELLOWSHIPS.

The Imperial College of Science and Technology, South Kensington, London, S.W.7, with which the Royal School of Mines is incorporated, is offering two Research Fellowships of £300 a year each, tenable for one year, and possibly renewable for a second year, to aid in carrying out any investigation or research connected with Mining, Mining Geology, Metallurgy, or the Technology of Oil, which in the opinion of the Selection Committee is of sufficient use or promise.

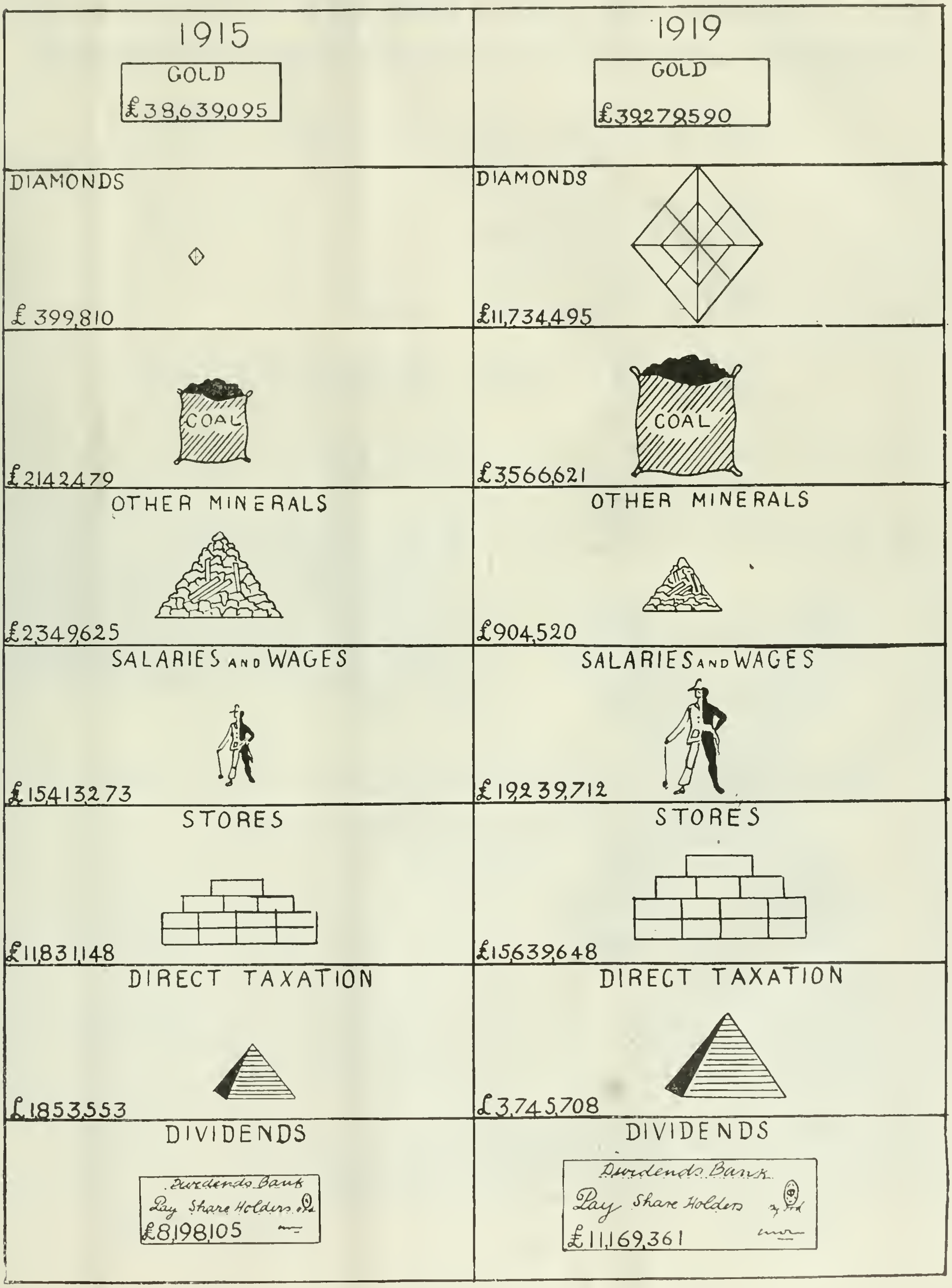
Applicants who may be Associates of the Royal School of Mines or others, and preferably men with some practical experience, if resident in South Africa, should apply in writing to the Secretary of the Chemical, Metallurgical, and Mining Society of South Africa, Johannesburg (from whom further particulars may be obtained), before 1st September, 1920, giving the nature of the proposed investigation, qualifications for the work, and references.

It is anticipated that the Committee will make the awards by the end of November, so that the Fellowships and work may begin on 1st January, 1921. Holders will be expected to devote their whole time to the work which may be conducted at the Imperial College, or in special circumstances elsewhere, at the discretion of the Committee.

WHERE OUR MONEY COMES FROM AND WHERE IT GOES.

SALIENT FEATURES OF THE UNION'S MINERAL INDUSTRY IN 1919 AND 1915—LAST YEAR AND THE FIRST "WHOLE" YEAR OF THE WAR CONTRASTED—SOME STRIKING COMPARISONS EXPRESSED IN GRAPHIC FORM—OUTPUTS AND EXPENDITURE.

(Specially drawn for "The South African Mining and Engineering Journal").



	1915	1919
GOLD	£38,639,095	£39,279,590
DIAMONDS	£399,810	£11,734,495
COAL	£2,142,479	£3,566,621
OTHER MINERALS	£2,349,625	£904,520
SALARIES AND WAGES	£15,413,273	£19,239,712
STORES	£11,831,148	£15,639,648
DIRECT TAXATION	£1,853,553	£3,745,708
DIVIDENDS	£8,198,105	£11,169,361

SIEMENS BROTHERS

& CO., LIMITED

CABLES AND ACCESSORIES

TELEGRAPH
TELEPHONE AND
SIGNALLING APPARATUS

OVERHEAD LINE
EQUIPMENT

PRIMARY CELLS
&c., &c.

SIEMENS BROTHERS & Co., Ltd.,
WOOLWICH, LONDON, S.E.18
ESTABLISHED 1858.

Telegrams: "Siemens, Woolwich"

Telephone: City 6400 (7 lines).

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings.
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.—Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

Representative in South Africa:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202.

Telegrams: "SIEMENS."

SOUTH AFRICAN IRON AND STEEL.

The Government Mining Engineer's View—To Surpass the Gold Mining Industry—Last Year's Output £405,789 Vereeniging's Big Contribution.

Interesting details of the progress of the iron and steel industry in South Africa appear in the annual report of the Government Mining Engineer, from which we take the following:

The Union Steel Corporation's works at Vereeniging had a successful year, the production being 10,318 tons of open hearth steel from scrap or pig, the value of the output being £200,753. The newly-installed 3½-ton Heroult electric furnace had ten months' work, and produced 1,391·5 tons of steel of the total value of £30,185. Most of this output goes to the mines in the form of shoes, dies, rails, and tube-mill bars. The Corporation are now arranging to forge the shoes and dies after casting by means of a 600-ton hydraulic press. The average labour employed consists of about 127 whites and 252 natives.

The Transvaal Blast Furnace Company, in which the before-mentioned company is largely interested, was not working continuously, but produced 676 tons of pig-iron of value £2,855. This company employed on an average eight whites and 39 coloured persons.

The Pretoria Iron Works.

The blast furnace of these works was restarted in March after the stoppage due to the influenza epidemic and certain necessary alterations to the plant. It was blown out early in September, as its working interfered with the erection of the large and modernly-equipped foundry which was then being taken in hand. During the six months' run of the furnace, it was conclusively proved that the ores and fluxes were as good as could be desired. The quality of the iron varied from time to time, but practically all the iron produced during the run is saleable. The output of pig-iron was 1,286 tons of value £9,645. It is the intention to increase the capital and to work on a much larger scale, and to produce not only pig-iron, but also steel in the form of angles, bars, tees, beams, rails, sleepers, etc. The average labour employed during the year was 25 whites and 56 natives.

WORKS OF THE UNION STEEL CORPORATION AT VEREENIGING.

Dunswart Iron and Steel Works.

At the Dunswart Iron and Steel Works little alteration has taken place during 1919. During the latter part of the year an 8-inch roller mill was installed, and the average monthly output increased to about 550 tons of bar, rod, and angle iron. The total output was 5,596 tons of value £139,660, and the labour employed averaged 40 whites and 212 coloured persons.

Witwatersrand Co-operative Smelting Works.

The original electric furnace was re-erected in a fresh position, so as to be more conveniently operated in conjunction with the new one. A new pre-heating furnace was also built, suitable for providing hot scraps for either furnace. Ferro-manganese, ferro-silicon, and ferro-chrome being obtainable, a higher quality of steel has been produced. The life of the liners has increased owing to more experience in operating, as much as 75 tons net of castings being obtained from one liner. The total output of shoes and dies was 1,013 tons, of value £22,100. The average labour employed was six whites and 30 natives.

Newcastle Iron and Steel.

The Newcastle Iron and Steel, Ltd., are erecting plant at Newcastle (Natal) to produce pig-iron from ore, open hearth steel, and iron and steel castings up to 20 tons weight. This company expects to start mining ore in July and smelting in October, 1920.

It will be seen from the above summary of operations that the production of iron and steel is now attracting great attention, and that the country is on the eve, apparently, of large expansion in this new branch of industry. The total value of iron and steel goods produced in South Africa has in 1919 already amounted to the respectable total of £105,789. There is every prospect that in course of time this will become one of the country's principal sources of wealth and prosperity. It may take a generation before this happens, and there will no doubt be many ups and downs, but with our magnificent resources in iron ores, coal, and smelting materials, it may fairly be anticipated that the industry, with the subsidiary activities which follow in its trail, will surpass even the great gold mining industry of to-day.

ZAAIPLAATS TIN MINING CO.

The results of operations at Zaaiplaats for the month of July, 1920, are as follow: Mill ran, 7 days; concentrates won, 28 tons; estimated loss for the month, £733 6s. 4d.; capital expenditure, £46 16s. 9d.

PHONE 4673 BOX 3162

OSBORN'S
"HAND AND HEART" DRILL STEEL
Solid and Hollow.
LARGE STOCKS CARRIED LOCALLY.
SAMUEL OSBORN (South Africa) Ltd.
SHEFFIELD & JOHANNESBURG.

REGD TRADE MARK

Measuring Instruments

for all requirements.

British made at the Salford Instrument Works of the **General Electric Co., Limited, England** Highest grade in quality, workmanship, finish, accuracy and reliability

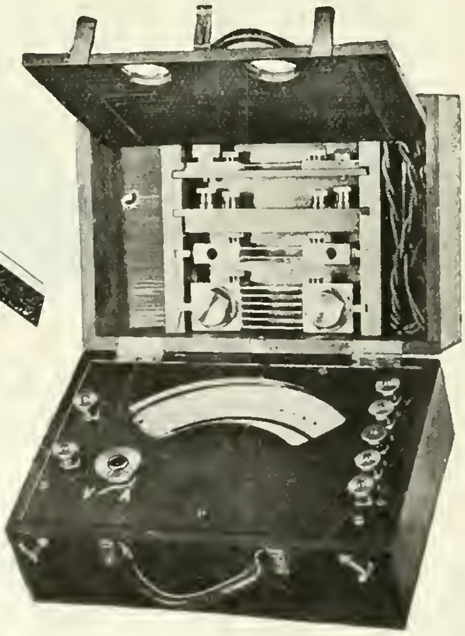
Competitive Prices. **Delivery from Stock.**

THE

BRITISH GENERAL ELECTRIC CO., LTD.

P.O. Box 2406.
JOHANNESBURG
Telephones 4242 3.
Tel. Add.: "CURRENT."

BRANCH OFFICE: 83/89, CASTLE STREET, CAPETOWN.
And at Port Elizabeth, East London, Durban, Bulawayo, Etc.



TRADE UNIONISM AND EFFICIENCY.

A VALUABLE BIT OF STRAIGHT TALKING.

By M. FERGUSSON, Government Inspector of Mines, Krugersdorp District.

The following striking article by the Government Mines Department official in charge of the Krugersdorp Inspectorate, Mr. M. Fergusson, appears in the just issued report of the Mines Department.

It is a most valuable contribution to the literature of the greatest problem of the day, and should be read, marked, learned and inwardly digested both by the bosses and the wage-earners. For it goes straight to the heart of things and is a document of inestimable value.

Reference has been made at various times to the question as to whether trades unionism affects adversely the efficiency of the individual. The opposite should certainly be the case if the old principles of trades unionism were adhered to.

The chief aim and object of a trade union should be (1) to safeguard the interests and promote the welfare of its members, and (2) to uphold the honour and traditions of the craft by only admitting to membership such individuals as have proved themselves to be skilled craftsmen and men of moral standing.

Under such conditions there is no doubt that pure trades unionism is of vast benefit to the workman, and capable of being of great assistance to an industry where its legitimate functions are not departed from.

It is to be feared, however, that many present day unions have no such object in view. Their chief aim is political, although at the same time they do follow along trades union lines in looking after the interests of their members. They refuse membership to nobody; in fact, they force everybody to join them under compulsion, not permitting even the lowest criminal to escape their net, and forbidding any member to resign after having once joined. Also, they are not content with the power which they are thus able to wield, but seek ever greater power through amalgamations with other unions.

Under such conditions, where a man of low moral character or only partially skilled in his craft is eligible for membership and, presumably, for executive office, it is difficult to understand how a high standard of efficiency can be maintained or the honourable traditions of the craft be upheld. Efficiency depends upon close attention to detail, and under the present conditions of absence of discipline as referred to hereafter, such close attention is generally lacking.

The miner exercises a general supervision to the extent of instructing the natives at the beginning of the shift as to what their particular duties for the day will be, such as to drill three holes or put in a stick of timber, but he, as a rule, does not return over the same ground to see if his instructions are being given proper effect to.

Efficiency, Skill and Loyalty.

"Efficiency" must not be confused with "skill" There is no question about the present-day miner being able to acquire the same degree of skill as the older generation, provided he is prepared to take off his coat and do the work himself, which, by the way, is not by any means always the case. Too often one comes across the miner holding a light and looking on at the native doing the skilled work.

Efficiency and loyalty go hand in hand. It is to be feared that there is very little of the latter quality to be found nowadays. What passes for loyalty has been transferred from employer to union. Everybody is a member of some union, and every action is dictated by self-interest or fear of consequences.

In older days it is probable that a man's loyalty to his employer was in some cases besed upon fear of dismissal, though there is not the slightest doubt that many employers of labour had the interests of their workmen as much at heart as their own personal gain. To-day no man has any thought for his employer; it is all a question of what his union would expect him to do or approve of him doing.

Such is loyalty from that point of view. There is another, as will be seen from what follows.

There is a great scarcity of qualified mine officials in this district—that is, underground managers, mine overseers, and shift-bosses. The first two mentioned classes are usually promoted from shift-bosses, so the scarcity in the supply of the latter accounts to a large extent for the general shortage.

Complaints from the mines have been so frequent in this connection, and the duties of the shift-bosses have been performed in such an unsatisfactory manner, both from the point of view of the management and the Mines Department, that inquiries have been made as to the reasons for the position which has arisen.

Courage at a Low Ebb.

It appears that if a shift-boss is keen on his work, carries out his duties conscientiously, and reports all contraventions of the regulations which he has noticed to the manager, it frequently happens that the miners approach the manager and threaten to strike unless the objectionable official is immediately removed. Apparently, few of the managers concerned have had sufficient courage and loyalty to stand up for the victim, as information is to the effect that several shift-bosses have been removed from their positions in this manner without so much as a protest, the fear of precipitating a strike and possibly incurring censure or blame in the subsequent proceedings dominating the better feelings of those who ought at all costs to be loyal to their subordinates. So far as is known, no inquiry has been held in connection with any of the above occurrences, and the statement made is based upon unofficial reports supported by admissions by managers.

Organised action of such a nature on the part of the workmen does not augur well for the industry and for those connected with it should the time ever come when their aspirations are realised of exercising some form of control. It would appear advisable that they should first learn to control themselves to the extent of submitting to lawful discipline exerted in the interests of their own health and safety and that of their fellow-workmen.

It is difficult to believe, and actually it is not a fact, that the majority of miners are habitual law-breakers, consequently it can only be assumed that in the instances referred to the majority have placed themselves unreservedly in the hands of the few discontented offenders who desire a free hand to jeopardize their own health and lives and that of the majority as well, and incidentally to give an exhibition of their power and consequence.

The Sin of Democracies.

The destination which such a road leads to is plain. If surrender is made to what the majority demands, or appears to demand, the time will quickly come when all officials will be appointed by, and will hold their position by favour of, the leaders of the majority. When that time does come, it can only be hoped, but with little cause for enthusiasm, that escape will be possible from the besetting sin of all democracies, viz., corruption.

One can only view the present course of events with a feeling of sad contempt for the new principle that expedience is a better guide than justice.

In fairness to the managers, it must be admitted that many of them are not managers in the true sense of the word, but merely agents of what the industry considers to be expedient.

The position arising out of the circumstances above described is, then, that under present conditions the officials on the mines are frightened to exercise any authority, in consequence of which the Mining Regulations are not being properly carried out, and efficiency is at a low ebb. The correct attitude for the State to adopt would apparently be to appoint more inspectors, in order that the regulations should be more strictly enforced. But the objection to that is, that there is at present a comparatively large number of inspectors, and if that number is increased to any great extent it will mean that Government officials will be giving instructions in regard to the carrying out of the work and interfering with the routine of the mine. This would inevitably mean a collision with the management sooner or later, and the result would be chaos.

The only practical solution of the difficulty appears to lie in making the position for mine officials and foremen more attractive and secure, thus making it worth while for the best class to accept such responsibilities, and, when that has been done, to uphold their authority as officials.

Efficiency is further adversely affected by the action of some of the Union officials, who take it upon themselves to interfere in the work of the mine by giving instructions directly to workmen concerning the details of their work, thus undermining the authority of the mine officials and creating a condition of insubordination, and, in some cases, of personal danger to those working at the place concerned. This, of course, is not necessarily the fault of the Union, but of the manner in which its principles are carried out. At the same time, it is important to mention this, as it is of very frequent occurrence, and its effect is serious.

The Unenviable Lot of the Shift Boss.

The Boards of Reference have been the means of keeping the peace by preventing and putting an end to a number of strikes, but there is little doubt that by their methods and frequent non-committal findings they have undermined the authority of the mine officials.

If a shift-boss reports to his manager that a miner has broken the regulations, and used threatening and insulting language to him for drawing his attention to it, the manager, instead of acting in the manner which common sense dictates, thinks he is bound to convert himself into a court of inquiry, and decide by weight of evidence as to the merits of the case. Naturally, the shift-boss adheres to his statement and the miner denies it. The result is that the miner gets the benefit of the doubt. If the word of the shift-boss cannot be taken as final in a matter of this sort, he is not fitted to hold the position.

Unfortunately, men of proved integrity and long-standing service as shift-bosses have been treated in this matter, and resent it.

A Domestic Simile.

If Mrs. Miner complains to her husband that the lodger has insulted her, Mr. Miner, if he is a man, does not pull out a note-book and take statements from the parties concerned. He takes forcible action, and dismisses the offender from his household. Any other attitude would appear ridiculous to the impartial observer, and give rise to derision on the part of the offender.

Reference was made above to the influence which a few discontented individuals are able to bring to bear upon the mass of workmen who otherwise would be perfectly satisfied, and only desirous of being left alone to follow their occupations without hindrance.

The general attitude is fairly exemplified by an incident which took place locally in the early part of the year. A deputation of natives approached the magistrate for advice as to what they should do, as they were being intimidated and jeered at by emissaries from Johannesburg because they were not joining in the disturbances against the Pass Law. They felt that they ought to do something to show their loyalty to their compatriots, and therefore asked that their grievances should be considered. On being asked to formulate their grievances, they stated that they had not yet had time to go into that side of the question.

One solution of the trouble does not appear to have occurred to the malcontents, which is, to go elsewhere and seek more congenial occupation, leaving those who are content to carry on in peace.

Unfortunately, the only occupation which some people appear to find congenial is stirring up strife amongst those who desire to work.

SOUTHERN VAN RYN

Some good reasons for investing in this great OUTCROP mine on the Van Ryn and Nigel Reefs :—

(1) The Mine is unique in the world's greatest goldfield.
(2) 2,146 Gold Claims entirely owned by Shareholders—no Government share of profits to pay.
(3) Over £40,000 cash in hand and new working capital continually being paid in.
(4) £50,000 worth of plant, equipment and stores all paid for. No debentures and no debts.
(5) Two pay reefs to draw from, whose steep dip means large tonnages and cheap mining. The Nigel Company earned nearly a million profit on the Nigel Reef alone, from about one eighth of the number of claims on the Nigel Reef owned by Southern Van Ryn.
(6) Will begin gold production in October from the 30,000 tons of pay reef already developed.
(7) 5,000,000 tons of good coal on the property, which can be mined at 3s. per ton. This coal is already supplying power to the gold mine, and is alone worth more than the Company's capital.

Buy while the market is low for the rise which is coming: or, better still, buy to hold for dividends, in

THE COMING GREAT MINE OF THE FAR EAST RAND!

For further particulars write or apply to the Managing Director, Mr. W. E. BLELOCH, 3, Transvaal Bank Buildings, Fox Street, Johannesburg.

Witbank Colliery, Limited.

(Incorporated in the Transvaal.)

Declaration of Dividend No. 31.

A DIVIDEND of ten per cent. (10 per cent.) (2s. per £1 share) on the issued capital of £350,000 has been declared by the Board for the period ending 31st August 1920, payable to shareholders registered in the books of the Company at the close of business on the 31st August, 1920.

The Transfer Books will be closed from the 1st to the 7th September, 1920, both days inclusive.

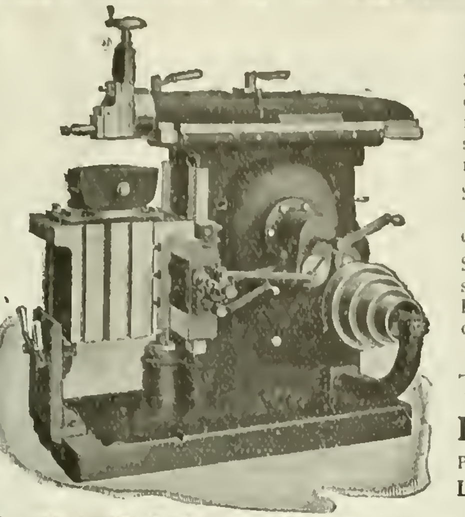
The Dividend will be paid as early in October, 1920, as possible.

Dividend Warrants despatched from the London Office to persons in the United Kingdom will be subject to a deduction of English Income Tax.

By Order of the Board,

RAND MINES, LIMITED, Secretaries.
S. C. STEIL, Secretary.

Head Office:
The Corner House, Johannesburg.
16th August, 1920.



STEPTOE SHAPERS AND MILLERS

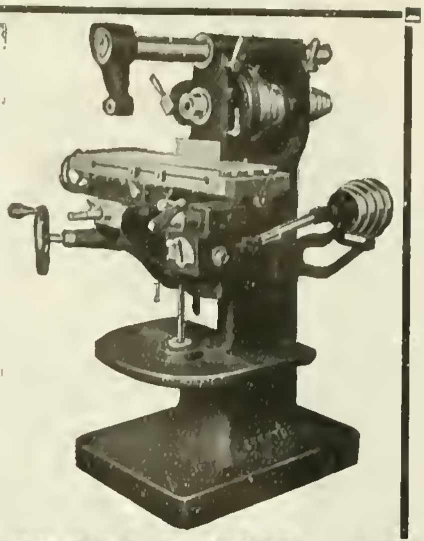
Seventy-five years of experience in the manufacture of high grade machine tools with thousands of our machines in shops all over the world giving daily satisfaction are recommendations that you should not overlook in the selection of your equipment.

Send for a copy of our catalogue showing our entire line of Shapers and Millers, also complete specifications, prices, etc.

Steptoe Shapers can be supplied with cone drive, single pulley drive or motor drive. Each machine before leaving the factory is thoroughly tested by corps of inspectors

SOLE SOUTH AFRICAN AGENTS FOR
The John Steptoe Co., Cincinnati, Ohio, U.S.A.

BARTLE & COMPANY, LTD.,
P.O. BOX 2466. PHONE 3553. WIRES "FAGGOT"
LOVEDAY HOUSE —— JOHANNESBURG.



Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

HEIDELBERG REEFS.

To the Editor, S.A. *Mining and Engineering Journal.*

Sir,—I read in your issue of 14th inst., under above caption that "a series of gold-bearing reefs, one of which is said to be 12 feet wide carrying high values, has been discovered." I read also that on Sub Nigel "a new reef" has been developed giving high values as published. These are sensational items in view of the great geological controversy and certain Government cables published in London. With other readers, I should welcome further information, and especially would ask you whether the "new reef" on Sub Nigel is not, both in relative position and appearance, similar to what Mr. Bleloch calls the Van Ryn Reef, now being developed on the Southern Van Ryn? In any case, it appears to give very practical confirmation of what is called the "Two Reef Theory."—Yours, etc.,

J. G. JARVIS.

P.O. Box 2718, Johannesburg,
August 17th, 1920.

—AND WEST RAND REEFS.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—For some time now considerable pegging of claims has taken place on the West Rand. One gentleman claims to have just discovered the Main Reef in those parts. In the local press he writes every now and again optimistic reports of his new discovery. Before I knew anything of Rand strata—I think it was in 1909—a friend of mine and myself were interested in these same reefs, which were then also correlated as Main Reef. The gentleman in question was then, as now, prospecting on the Jeppestown shale reef, Jeppestown quartzite reef, and the Government reef. Most of the old prospecting shafts and trenches were made by him on these reefs on the farm Mooigelegen immediately north of the Luipaardsvlei station. The above-mentioned reefs could be seen by anyone who took the trouble to go and look (lying in their normal positions), north of the old May mine, Jeppestown hill, Witpoortje, Luipaardsvlei, and practically all along the line from the East to the West Rand. Surely every novice of Rand geology knows the sequence from Main to Government Reefs, from the higher to the lower horizons, to be Main Reef, Jeppestown Shale Reef, Jeppestown Quarzite Reef, Government Reef, and if followed further the Coronation Reef, Du Preez Reef, and last, the Basement Reef. The latter may be seen beneath the quartzites at Orange Grove, lying on the serecite which rests on the granite, also in the railway cutting at the Van Ryn mine. Here the Orange Grove quartzites are practically on the green quartzites, the whole country from the Water Tower to the contorted shales having been eliminated by a downthrow fault. The only reef series which is not so persistent on the outcrop as the others mentioned is the Du Preez, which over large areas has been disturbed by downthrows by the great Rietfontein fault, but where it has not been so disturbed its outcrop formations and sometimes the reefs carrying the same high gold values as at Rietfontein may be followed. I am aware that Dr. Mellor has given it as his opinion that the Du Preez is a faulted portion of the South or Van Ryn Reef, but I do not think that the Doctor has yet explained how it is that at least four shale beds overlie the Du Preez series, whereas no shale overlies the Main Reef series. To assume that these shale bands may belong to the Kimberley series is untenable; besides, the outcrop of the Du Preez series at different points along the Rand, together with their high values must first be explained away, and if not the same must also be correlated as over or underlying the Riettontein Reefs. According to records the Du Preez Reef yielded from 1906-1914 close on three millions' worth of gold. It has never been properly tested anywhere else. In your issue of the 14th inst. you gave some prominence to the gold under Johannesburg. Mr. Scott Alexander is quite right. There are reefs there, namely, the Jeppestown Shale and Quartzite Reefs. I have sampled and assayed them, taken where exposed by trenching in the Johannesburg streets and excavations for buildings. The answer as to their value is best illustrated by the shallow trenches all along the line wherever they have been prospected.—Yours, etc.,

G. DONOVAN.

World Labour Conditions.

We have received a valuable brochure containing the address by Mr. W. Gemmill, Actuary and Labour Adviser, Transvaal Chamber of Mines; South African Employers' Delegate, International Labour Conference, 1919, delivered at the annual convention of the South African Federated Chamber of Industries, Capetown, on June 15th, 1920. This is a most important document, to which through exigencies of space we are unable to give the prominence it deserves in this issue, but it will be dealt with at length next week.

BY THE WAY.

A Non-Serious Column for Serious People.

According to the daily cable service, the French recognition of General Wrangel in Russia came as a bombshell to the British Government. This is surprising, for we have for long been under the impression that there is a general wrangle in that distressful country. In fact there does not seem to be much else.

* * * *

A reader asks: "What becomes of the smoke from the Victoria Falls Power stations?" We have referred this question to our puzzle editor, who will answer it after he has solved those two hoary problems: "Where do flies go in winter time?" and "Do married men make the best husbands?"

* * * *

We seldom are guilty of bursting into verse, but the following, contributed by a reader on the Reef and entitled "Reflections in a Mine Boarding House," seems worthy of reproduction.

Only a woman's hair,
  Long, delicate and slender,
Light as a spider's silken lair,
  Soft as a moonbeam tender:
One that some helpless swain
  Might carry as a token
Of her he loves, yet loves in vain,
  With constancy unbroken.
And yet it makes me swear
  At our confounded slavey,
For I'll be hanged if I can bear
  Such relics in the gravy.

In the House of Assembly the other day the Minister of Mines, in replying to Mr. Feetham on the subject of warning overseas miners intending to emigrate to the Rand as to the nature of the medical examinations they would be required to pass, said that the Miners' Union had circularised miners' organisations in England *and* Cornwall. We notice, however, in the latest annual report of the Government Mining Engineer a classification of white mine employees according to country of birth, which states that 12,867 white mine workers were born in the United Kingdom. But what about Cornwall? This is a decided slight on the Delectable Duchy.

* * * *

Reuter, in *The Star* of August 17th, states: "A Bolshevik communique received in Berlin states that after a slight engagement the Russians have forced their way to Illovo." We trust that the Government has taken measures to protect the Illovo Bridge and safeguard the sugar crop.

Railway Tonnages in Competitive Zone.

We have received from the S.A. Railways a statement showing for the month of June, 1920, the approximate tonnage and percentage of tonnage of commercial seaborne traffic from the different ports to stations within the competitive zone, *i.e.*, Vereeniging-Pretoria, Springs-Klerksdorp inclusive, and including the South Rand and Vereeniging-Canada Junction lines. Group 1—Rates 1, 2 and 3: Tonnage: Capetown, 860; Port Elizabeth, 2,381; East London, 501; Port Natal, 8,318; Lourenço Marques, 4,897. Percentage: Capetown, 5·07; Port Elizabeth, 14·04; East London, 2·96; Port Natal, 49·05; Lourenço Marques, 28·88. Group 2—Rates 4, 5, 6, 7, 13 and 16: Tonnage: Capetown, 283; Port Elizabeth, 401; East London, 487; Port Natal, 3.311; Lourenço Marques, 6,951. Percentage: Capetown, 2·48; Port Elizabeth, 3·50; East London, 4·26; Port Natal, 28·96; Lourenço Marques, 60·80. Totals:—Tonnage: Capetown, 1,143· Port Elizabeth, 2,782; East London, 988; Port Natal, 11,629; Lourenço Marques, 11,848. Percentage: Capetown, 4·03; Port Elizabeth, 9·80; East London, 3·48; Port Natal, 40·96; Lourenço Marques, 41·73.

IRON
AND
STEEL

Horace T. Potts & Co.,
316-18-20, N. Third Street,
PHILADELPHIA, PA., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

Glynn's Lydenburg, Limited

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-third Ordinary General Meeting of Shareholders for the year ended 31st July, 1920, will be held in the Board Room, The Corner House, Johannesburg, on WEDNESDAY, 15th DECEMBER, 1920, at 3.45 p.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st July, 1920, and the Reports of the Directors and Auditors.
2. To confirm the appointment of Mr. F. Raleigh as a Director of the Company, in place of Mr. H. C. Boyd, resigned.
3. To elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
4. To determine the remuneration of the Auditors for the past audit, and to appoint Auditors for the ensuing year.
5. To transact any other business which may be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Transfer Books of the Company will be closed from the 9th December to the 15th December, 1920, both days inclusive.

By Order of the Board,

Transvaal Consolidated Land and Exploration Co., Ltd.,
Secretaries.
Per C. L. READ.

Head Office: The Corner House,
Johannesburg, 28th July, 1920.

SPORT ON THE MINES.

HOW AN IMPORTANT MOVEMENT IS PROGRESSING—BETTERING THE SOCIAL LIFE OF THE REEF—A BARRIER AGAINST PHTHISIS.

The Mines Boxing Tournament which is being held at the Drill Hall, Johannesburg, on Saturday, 18th September, represents the latest addition to the activities of the "Sport for Health" movement which was inaugurated some three years ago by the Sub-Committee on Physical Culture and Mine Sport, of which Mr. H. A. Read is chairman. It is impossible to over-estimate the beneficial effects this movement has had on the industry.

Commencing with soccer and rugby, these proved so successful that cricket, tennis and golf were added, floating trophies for which were presented by the Rand Mutual Assurance Co., Ltd., and it has now been decided to actively encourage the formation of mines boxing clubs, as a 'kick-off' to which this tournament is being held. Jack Lalor, the well-known veteran, who has been engaged as instructor to the new club, will put up an exhibition bout with a prominent amateur, and it is expected that the entries in the four divisions—light, welter, middle and heavy—although novices, will provide an interesting show.

In addition to the foregoing the sub-committee have also held two successful sports meetings at the Wanderers' Grounds, which resulted in the sum of nearly £200 being handed over to the Governor-General's Fund.

As this is the first commentary we have made on the inter-mine sporting competitions, a brief resume of the different branches of sport may not be out of place.

Soccer.—In 1918 E.R.P.M. (Hercules Section) were the winners. Present holders: Crown Mines, who appear to have a good chance of retaining the Shield this year.

Rugby.—In 1918 Springs were the winners; last year, E.R.P.M.; and this season, Simmer and Jack.

Cricket.—Season 1918-19: Winners, New Modder; season 1919-20: Winners, Crown Mines. "Andrew Cup," knock-out, won by Van Ryn Deep last season.

Golf.—Cup now held by Brakpan Mines.

Tennis.—Present champions, Luipaardsvlei Estate.

The success of the movement, representing as it does the connecting link between the various sporting clubs on the mines, is undoubted, and has added considerably not only to the sporting, but also the social, life of the mines, and the number of underground men taking part means an additional barrier against miners' phthisis.

MODDER "B" RUGBY FOOTBALL TEAM.

Winners of the "Wolhuter Cup," and runners-up for the "Safety First Rugby Shield," the final of which was played at the Wanderers' Grounds, Johannesburg, on Saturday, 31st July, 1920.

Back Row.—A. Dungey, W. Monthe, E. S. Austin, G. Clough, J. F. Fourie, M. Becker, G. V. Waldeck, J. P. Botha, A. L. Ferreira, W. J. Kloppers,and A. Reid (Referee).

Middle Row.—J. F. Finch, R. H. Catterall, C. L. Butlin (Manager, Modder B.), A. E. Bird (Capt.), W. B. Craggs, H. G. Hellman, W. H. Morgan (Organiser), and D. McLean.

Front Row.—B. I. Brown and J. W. Melvin (Secretary).

PERSONAL.

Mr. J. W. H. Stubbs, well known on the Rand, and Messrs. R. E. Binns and H. Hereford have been visiting Algeria, on the business of Messrs. Bainbridge, Seymour & Co.

* * * *

Mr. H. B. Vaile, the chairman of Crescens (Matabele) Mines and Land Co., has left for South Africa by the Union Castle Co.'s steamer "Briton." He expects to be away from England about five months.

* * * *

The following is the list of certificates issued by the Mines Department for the period ending 14th August, 1920: Mine Overseers: Metal Mines: R. M. Grandison, A. H. Guy, J. L. Payne, E. A. Polkinghorne, M. Schaap, J. Stuart. Collieries: P. H. M. Henderson.

Sir Horace Byatt, K.C.M.G., Lieut.-Governor of Malta, has been appointed Governor of Tanganyika Territory.

* * * *

At a meeting of members of the Institution of Mining and Metallurgy, held in Johannesburg on Tuesday, August 3rd, there being present Sir Robert Kotzé, Sir Harry Ross Skinner, Dr. Caldecott, Messrs. H. Stuart Martin, S. H. Pearce and G. Hildick-Smith, the alterations to the constitution and by-laws of the Institution—as suggested in the notice of the special general meeting to be held in London on October 21st, 1920—were discussed. As a result it was thought that members of the Institution in the Union would welcome an opportunity of meeting on Monday, September 6th, at 2.30 p.m., in the Board Room, 2nd Floor, Corner House, Johannesburg, to consider the suggested alterations to the constitution and by-laws, in order to inform Council, if necessary, of their views, prior to the meeting in London on October 21st.

STURROCK & CO.

GENERAL, MINING AND RAILWAY
ENGINEERS AND CONTRACTORS

beg to announce that
in future this business
will be carried on
under the title:—

STURROCK
(SOUTH AFRICA) LTD.

to whom all communications should be sent.

OFFICES:—
Barsdorf's Buildings,
MARSHALL STREET,
JOHANNESBURG.

P.O. Box 2863. Telegrams: "Delta." 'Phones 2596.

ANNOUNCING THE OPENING OF
BARIMAR
IN
SOUTH AFRICA

Following the policy of putting Barimar Branch Factories around the world, the Directors have pleasure in announcing the opening of the third Barimar Factory out of England—

BARIMAR (SOUTH AFRICA) LTD.,
Head Office— BARSDORF'S BUILDINGS, JOHANNESBURG.

Barimar (South Africa), Ltd., is completely equipped with the latest appliances for welding all metals, and with the most efficient machinery for completing repairs.

Highly skilled welders, trained in Barimar London Factories, control the technical side of Scientific Welding in the South African Factory, and these men will be able to produce the same grade of work that has made Barimar Scientific Welding famous throughout the Motor and Engineering Trades.

To SEND REPAIRS TO BARIMAR. We must see the parts before we can estimate or advise upon repair. Send them to us. First remove all fittings, then attach a label bearing your name and address. Please pay carriage. Post a letter to us advising despatch and give full instructions.

BARIMAR (S.A.) LTD.,
Ferreira Industrial Sites,
SAUER STREET SOUTH, JOHANNESBURG.
Telegrams "Barimar." 'Phone 2596. Box 2863.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK (S.A.) LTD.,
BARSDORF'S BLDGS.,

Telegrams: "BRITFLOT." Phones 2596-7.

THE WEEK IN THE SHAREMARKET.

DULL AND QUIET DAYS—SPECIALITIES DEALT IN.

DISTURBED political conditions in Europe and the fear of further complications resulting from the deadlock existing between the Chamber of Mines and the mine engine drivers have tended to depress the market somewhat during the past week and prices generally have ruled at lower levels. Oils and silvers have been the features, and African Oils and Geluks have both improved substantially but are slightly weaker at the moment of writing.

A very moderate amount of business was done on Thursday morning before High 'Change. Frank Smiths were dealt in at 15s. 6d.; an odd lot of Silvers at 54s. 3d.; Options at 33s.; Grenfell Coals at 22s. and 22s. 3d.; several hundreds of Pearl Bitumen at 10s.; Postmas at 8s.; and African Oils at 18s. 3d.

On the Call, gold stocks generally were dull and on the easy side, though not to any serious extent. City Deeps, however, were unchanged at 51s. sales and buyers, and Anglo-Americans were fairly steady at 30s. 9d. sales. Dagga Mines were also firm at 11s. sales, and Modder Wests were again dealt in at 16s. 6d. Most other stocks were more or less lower.

	Fri., 13th.	Sat., 14th.	Mon., 16th.	Tues., 17th.	Wed., 18th.	Thurs., 19th.
Anglo-Amer. Corp	31 0	31 0	31 0	30 6	30 6*	30 9
Bantjes Cons.	4 0†	—	4 0†	—	—	—
Brakpan Mines	49 0*	—	52 6†	—	—	—
Breyten Colls.	8 0*	9 0*	9 0*	9 0*	8 0*	—
Brick and Patteries	4 6*	—	—	—	—	—
British South Africa	—	—	—	15 0*	—	15 0*
Bushveld Tins	0 9*	—	0 9*	0 9*	0 9*	0 10*
Cassel Coals	35 0†	35 0†	35 0†	35 0†	—	35 0†
Cinderella Cons.	—	2 6*	—	—	—	—
City and Subs.	7 0*	7 0*	7 0*	7 0*	7 0*	7 0*
City Deeps	51 0*	51 0	—	51 0*	51 0	51 0
Con. Diamonds	—	—	—	31 0*	31 6*	30 0*
Clydesdale Colls.	24 0*	—	24 0*	—	24 0*	—
Con. Investments	30 0†	—	—	25 0*	—	—
Con. Langlaagtes	—	—	—	—	17 0†	15 0*
Con. Main Reefs	13 6*	13 6	13 6*	13 6*	13 9	13 6*
Con Mines Select.	22 0*	22 0*	22 0*	21 6*	22 0*	22 0*
Coronation Colls.	—	60 0*	—	60 0*	—	—
Coronation Freeholds	1 4*	1 4*	1 4*	1 4*	1 4*	1 4*
Coronation Syndicates	8 0*	—	8 0*	9 0*	8 0*	9 0*
Crown Diamonds	6 9*	6 9*	6 9*	6 10½	6 9	6 9*
Crown Mines	50 0*	50 0*		50 0*	52 6	—
De Beers Prf.	220 0*	220 0*	220 0*	226 8*	226 8	220 0*
Daggafontein Mines.	11 3	11 3	12 0†	10 0*	10 9*	11 0
Do. Opts. (5 yrs.)	2 0*	2 9†	2 0*	2 9†	1 0*	—
E.R. Coals	2 5	2 4*	2 5	2 5*	2 5*	—
E.R. Deeps	—	—	1 0†	1 0†	0 9†	0 9†
E.R. Props.	8 0	7 6*	7 6*	7 0*	7 3*	7 8*
E.R. Debentures	£66*	£66*	£66*	£66*	—	£66a
Eastern Golds	—	—	—	0 9*	0 9*	1 0†
Frank Smith Dmds.	16 4½	16 0	16 0	15 7½	15 3*	15 6*
Geduld Props.	38 6*	38 3*	39 6	38 6*	38 3*	38 0
Ginsbergs	—	—		3 3*	—	
Glencairns	—	—	—	1 3*	1 3*	1 3*
Glynn's Lydenburgs.	9 0*	9 0*	9 0*	10 0	10 0*	10 0*
Govt. Areas.	86 3	85 9	85 6	85 0	84 3*	83 6*
Hume Pipes	—	—	—	—	—	23 0*
Jh. Bd. of Ex.	—	—	—	30 6*	—	—
Jupiters	—	—	2 0*	2 0*	2 0*	2 0*
Klerksdorp Props.	2 0*	2 3*	2 0*	2 0*	2 0*	—
Knight Centrals	4 5*	4 6	4 6*	4 6	4 3*	4 3*
Knights Deeps	—	—	—	4 9*	4 6*	4 6*
Kaalfonteins	0 5†	0 5†	0 3	—	0 3	—
Lace Props.	9 9*	9 6*	9 3*	9 6*	10 0†	—
Leeuwpoort Tins.	19 3*	19 3*	19 0*	19 0*	18 9*	18 6*
Lydenburg Farms	—	6 10*	—	—	6 6*	6 7*
Meyer and Charltons	—	80 0*			—	—
Middelvlei Est	1 6*	1 6*		—	1 3*	—
Modder B.'s	135 0	132 6	131 0*	130 0*	130 0	130 0*
Modder Deeps	43 6	42 6*	43 0	42 3	42 9	42 3
Modder Easts	22 9	22 4½	22 7½	22 3*	22 0	21 9*
Do. Opts (4 yrs.)	6 10*	6 8	6 6	6 3	6 0	5 9
Modder Wests	16 0	16 0*	16 3	16 0*	16 6	16 6
New State Mines	27 0b	27 6*	27 9	27 6*	27 9	27 6*
Natal Navig. Colls.	25 0*	25 0*	25 0*	25 0*	25 6*	25 6*
National Banks	—	265 0*	—	265 0a	265 0*	260 0a
New Eland Dmds.	—	—	—	62 6†	59 0*	59 6
New Era Cons.	8 3*	9 0†	8 3*	8 3*	8 3*	8 3*
New Geduld Deeps	1 7*	1 7*	1 7*	2 0†	1 7*	1 7*
New Heriots	5 6*	—	5 6*	5 0*		5 0*
New Kleinfonteins	8 0*	8 0*	8 0*	8 3	7 6	8 0†
New Modders	71 3	70 9	70 9	70 0	70 0a	68 9
Nigels	6 0*	6 0*	—	6 0*		
Nourse Mines		8 6*	8 6*	—	9 0*	9 0*
Pretoria Cements	65 0*	65 0*	66 6	66 6a	65 6	66 0
Princess Estates		0 7*		0 7*		
Rand Mines	54 0†	54 0*	54 0*	54 0*	54 0*	54 0*
Rand Nucleus	1 0*	1 3*	1 3*	1 3*	1 3*	—
Randfontein Deeps	5 9*	5 9*	5 9*	5 9*	6 0	6 0*
Randfontein Est.	18 6	18 0	18 0	17 9	17 6*	17 9†
Roberts Victors	12 6*	12 6*	12 6		—	12 0*
Rooibergs	7 0	6 9*	6 10*	6 6*	6 9*	6 6*
Roodepoort Uniteds	—	0 6*	—	0 6*	0 6*	0 6*
Ryan Nigels	3 3*	3 3*				—
Rouxvilles	25 3	25 3	25 6	25 6*	25 6	25 0
Shebas	2 0*	2 0*	2 0	2 0†	1 0*	—
Simmer and Jacks	7 0†					
Simmer Deeps	—	—	0 6†		0 6†	—
S.A. Breweries	28 0*	28 0*	28 0*	—	28 0*	28 0*
S.A. Townships	11 3*	11 6	11 4*	11 3*	11 3*	11 0*
S.A. Lands	4 7*	4 6*	4 6*	4 6*	4 7	4 6*
Springs Mines	39 6	38 0*	38 6*	39 3	39 0	38 9
Sub Nigels	17 3	17 3	16 9	16 9	16 3	16 3*
Swaziland Tins	9 0*	9 0*	10 0*	10 3*	10 3*	11 6*
South Van Ryns	8 0	7 9*	8 0	7 10*	7 9*	7 9*
S.A. Alkali	26 6*	26 6*	26 0*	—	25 0*	26 0†
Transvaal Silvers	52 0	52 0	51 0*	54 0a	53 0*	54 6
Do Options	31 0	31 0a	30 3	32 6	31 9	33 3
Trans. Del. Invest.	75 0*	72 6*	—	—	—	—
Tudors	—	0 9†	0 9†	—	0 9†	—
Trans .G.M. Est.	—	—	10 0*		12 0*	10 0*
Union 5 per cent	£100½	£100½*	£100¾*	£100½	£100½	£100½
Van Ryn Deeps	78 6	77 0*	76 0*	75 0*	75 6	75 0*
Van Dyks	1 6*	—	—	—	—	1 6*
Village Deeps	—	9 6	—	10 6†	—	—
Village Main Reefs	—	—	6 0†	—	6 6	
West Rand Cons	5 0†	5 0†	5 0*	5 0†	—	5 0†
Western Rand Est.	4 3	4 0*	4 0*	4 3	—	4 0*
Witbank Colls.	50 0b	50 0*	—	50 0*	50 0*	51 0b
Wit. Deeps	7 6*	7 6*	7 10*	8 3*	—	7 9*
Victory Diamonds	1 1*	1 1*	1 4	1 5*	1 1*	1 3
West Springs	16 6	16 3	16 0*	16 3	15 9	15 6*
Do. Options	2 10*	2 11	2 9	2 9*	2 6*	2 7
Woluters	4 0*	3 6*	4 0	3 9	3 6*	3 6*
Zaaiplaats Tins	7 6†	7 0*	7 2*	7 3	7 4*	7 3

*Buyers. †Sellers aOdd lots bEx London.

World's Gold Stocks.

The Times publishes an interesting article on the currency position, indicating that since 1912 the world's output of gold has decreased from £95,900,000 to £72,000,000. The article shows that after deducting the absorption of gold by industry and India and Egypt, the aggregate stock of gold money has increased from £1,546,000,000 to £1,952,000,000. *The Times*, commenting on this, emphasises that the sooner the problem of fixing a gold value for the heavily depreciated currencies is tackled the more easily will Europe be able to proceed with reconstruction, and considers the basis of settlement will have to have some relation to the existing depreciation of currency.

Box 3807. **Tel. 5892.**

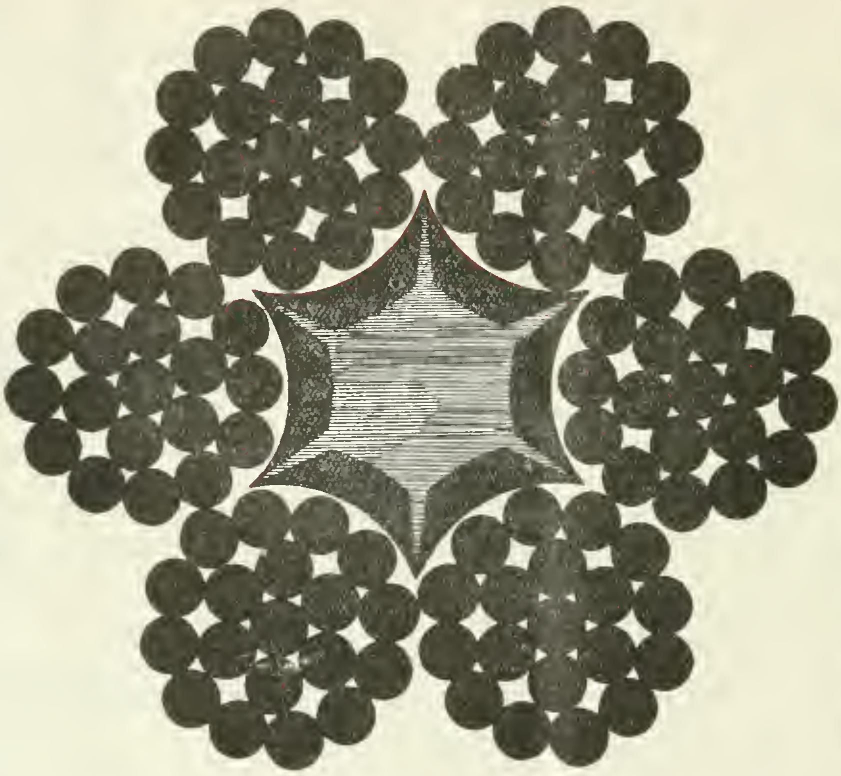
WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent.

CRAVEN & SPEEDING
BROS.
SUNDERLAND
ENGLAND.

Sole Agents for Transvaal and Natal:

CLYDE TRADING Company, Ltd.,
Howard Buildings,
C/o MAIN & LOVEDAY STREETS,
Box 457. :: JOHANNESBURG. :: 'Phone 5964.



It provides greater safety than can be secured by the regulations attached to the New Mines Act, because it is impossible for any acid in the hemp core to corrode the wires in the strands. A rope with an ordinary core frequently appears to be in good condition on the exterior, while its interior is in a dangerous condition.

SOLE MANUFACTURERS.
"WESTGARTH
PATENT CORE"
WIRE ROPE.

TRADE AND INDUSTRIES SECTION.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

QUIET WEEK IN MINING CIRCLES—IRON AND STEEL—TIMBER, IRON AND BUILDING MATERIALS—DYNAMITE—ELECTRICAL GOODS—BRUSHWARE.

[By a Special Correspondent.]

The long-awaited prorogation of Parliament at Capetown took place last Tuesday, 17th inst. One of its final measures, viz., the adoption by the Union of the agreement with the Pretoria Iron Mines, Ltd., to purchase 50 per cent. of the Government railway requirements for a period of 17 years, has been a fruitful subject of discussion in mercantile circles during the past few days. It is, of course, difficult to elicit any decided views on the subject; but, apart from those importers who will be hit more or less by this agreement coming into force, there is a not inconsiderable number of merchants who do not fail to see the great advantages which must accrue in the employment of so many of the growing generation of the Union by reason of the impetus which will be given to the local pig-iron industry.

The past week has been rather a quiet and uneventful one in mining circles. Merchants agree that, contrary to expectations and to custom, very ittle has been done on the Commercial Exchange or elsewhere since the end of June, the mines still continuing their hand-to-mouth policy in the matter of purchasing stores. Nor should this, perhaps, cause much wonder when account is taken of the present and potential unrest of Labour locally and the political tension existing in Europe. The ony redeeming feature in this chaotic state of things is the price of gold, which is now 113s. 3d. per ounce—satisfactory, at all events, as far as our low-grade mines are concerned.

IRON AND STEEL.

No improvement has manifested itself during the week; but, on the other hand, the tendency has been to harden, especially for steel plates of all sizes, which are gradually rising in price. Stocks here generally are very low, and this, with the unsettled state of things on the other side, together with the bugbear of the "subject to price ruling on date of delivery" clause, tends naturally to restrict business. On the Commercial Exchange very little business has been done, and what may be termed a waiting policy has arisen. No big inquiries from Rhodesian or other centres which are usually loooked for have so far this month materialised. Imported mild steel is 37s. 6d. to 40s.; drill steel, 7½d.; hollow, 1s. 3d.; brass rods, 2s. 3d.; plates, 2s. 6d.; wire nails are higher at 55s. to 70s.; picks, 2½lbs. and 3lbs. 37s. 6d. dozen, 4lbs. 45s. 6d., 6lbs. 63s. 6d., 7lbs. 72s. 6d. Shovels, English, are firming up and are now 75s. to 80s. dozen; wheelbarrows, 70s. to 75s.; Canadian are about 70s. Shafting, 7½d. to 8½d. Bolts and nuts, ⅜in., 1s. 6d. lb.; ½in., 82s. 6d. 100lbs.; ⅝in., 77s. 6d.; ¾in., 72s. 6d.; ⅞in., 70s.

TIMBER, IRON AND BUILDING MATERIALS.

Deals, 3 x 9, and scantlings are selling at 2s., 2s. 1d.; floorings, 10¼d., 10½d.; ceilings, 7¼d., 7½d. Galvanised iron is 1s. 5d. to 1s. 6d., according to length. Materials are arriving slowly owing to congestion at the coast, and stocks are not too plentiful here, as consignments are sold as soon as they arrive. 3 x 9 deals are likely to be scarce in future until fresh arrivals from the Baltic. Trading on the Commercial Exchange has been quiet to fair, and there is nothing in the shape of big contracts on hand. In the second-hand timber and iron section, dealers report business as stagnant, with fewer inquiries than hitherto. Stocks are, however, arriving gradually, if slowly, and prices are presently for iron 1s. 2d. and timber 1s. 6d. One prominent second hand dealer summed up the position by stating that people, in view of the local labour unrest and the political situation confronting the European Powers, are afraid to do business, and prefer to wait before operating until the present clouds disappear, even at the risk of some pecuniary loss. Bricks, inferior, are lower at 60s., 65s.; good are firm at previous prices, viz., stock, 70s. to 80s.; £6 to £7 wire cut or pressed. Chimney pots, 120s. dozen. The

ASBESTOS

HOBDELL WAY & CO., LTD.,
MINORIES, LONDON.
Cables: "HOBNAILS."

ALMOST
2,000 TONS IN STOCK

Dunswart, Vereeniging and
Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE **Singapore**
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

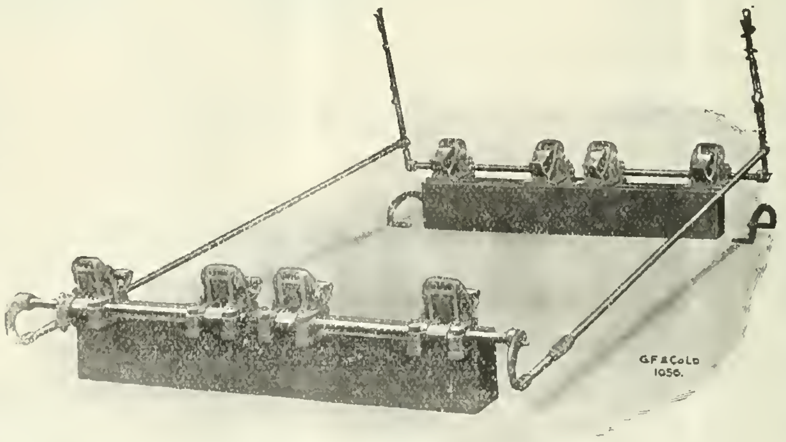
GEORGE FLETCHER & CO., LTD.
Masson & Atlas Works, DERBY, England.
SPECIALISTS IN MINE, COLLIERY AND CEMENT WORKS EQUIPMENT.

Sole Agents for South Africa :—

ASSOCIATED ENGINEERS
Co., Ltd.,
DURBAN.

Tel. Add. : "SPRINKLER."
P.O. Box 478. 'Phone 450.

Resident Engineer :—T. McNICOL.



"AMARILLA" KEP GEAR.

building trade has gone a bit flat, due to inability to get money on loan, although a great number of plans has been passed by the Council. Lime is 4s. 9d ; white unslacked, 7s. 6d. ; plaster lime, 5s. 9d ; slacked, 6s.

DYNAMITE.

Indications are not wanting that raw materials will increase in price at Home at an early date owing to the combined rise in the cost of glycerine, paper, boxes, etc. With regard to freights, the news to hand is not in favour of any drop in these at present. The British South African Explosives Co., Ltd., are continuing their prudent course of keeping ample stocks for local requirements on hand, sufficient for at least six months. According to latest advices, there is every probability of a small advance in the price of explosives in the near future owing to the causes already mentioned. The British South African Explosives Co., Ltd., are now advocating a more extensive use of farmers' dynamite by the farming community. Before the War this company were active in sending round men demonstrators, showing the benefits to be derived by farmers, etc., by using dynamite, but of course during the time of the War their stocks were conserved for the use of the mining companies. Now that stocks are ample the question of farmers utilising dynamite on farms for shifting rocks and stones and breaking up hard pan has again come to the fore, and farmers doubtless will find it very advantageous in such matters, in addition to well-sinking and ploughing rocks out of the road, water furrows, etc., and in many other ways. Dynamite is, of course, not suitable for ploughing ground, but in many cases it may be used round the farm to advantage.

ELECTRICAL GOODS.

In this section dealers report that business in town and country is satisfactory, and, although not much to boast of, is certainly better than it has been for the past two or three weeks. Materials are arriving now fairly freely, and stocks are being replenished, comparatively, to a satisfactory degree. Pear pushes and rosettes are still unprocurable, but one of our foremost dealers stated that he was expecting shortly a shipment from Austria through Trieste. With regard to pear pushes and rosettes, the difficulty is in the want of raw materials, which will still keep them on the dear side for some time to come. In England there has heretofore been a lack of enthusiasm in the manufacture of these articles, as there is at best very little money in them, and manufacturers have been better employed in other sections. There is therefore likely to be a scarcity in these for some time to come, as naturally machinery will be first employed where better results are obtainable. In the unavoidable absence of pear pushes, pear switches are being used, and ordinary ceiling roses for rosettes. Ceiling roses and adaptors, although not normal, are still coming in gradually. Lamps are scarce, and the price of half-watts is going up. This is the lamp patented by Edison, on which there will be a royalty for some time to come. No firms have as yet stepped in to make them, and it will probably be a long time before they are generally manufactured. The trade is now getting them from Holland and other places. As a general statement, the tendency of electrical goods is to decrease in price, and one of our foremost dealers thinks that that time will not be far distant. As regards wire, he thought there was no likelihood of its decreasing in price on account of the cost of the raw materials of copper, rubber and cotton, which are dear.

BRUSHWARE : WIDE-AWAKE AFRICA.

Mr. Bryant, of the African Indents Merchants, Ltd., we understand, learns from an authoritative source that the Union Government has prohibited the importation of Japanese shaving brushes. This action was taken as a prohibitive measure against introducing anthrax from Japan, which is caused through the diseased bristles not having been properly dressed before manufacture into brushware. The English Government a short time ago took the same steps in prohibiting Japanese brushes from being introduced into England. The Government has now already given the lead, and it is up to the general public to follow its example by buying nothing else but good brushware of British manufacture, which is from all points of view the most economical. Mr. Bryant, we are informed, has introduced certain brushware lines into South Africa which were never imported into this country from Great Britain until recently. It must also be borne in mind that sooner or later the South African public will recognise that they are buying brushware to-day cheaper than the consumers are buying it to-day in England. For example, it will be of interest to learn that the South African Indents Merchants, Ltd., are selling one of their best grade wire-drawn imported hair brooms in South Africa to-day at 70s. per dozen; the current Home cost for this particular line is 97s. In view, therefore, of the price ruling at Home, their advice is that people here should benefit by the present prices, as these cannot continue, and an increase is bound to occur when the majority of their stocks are landed.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

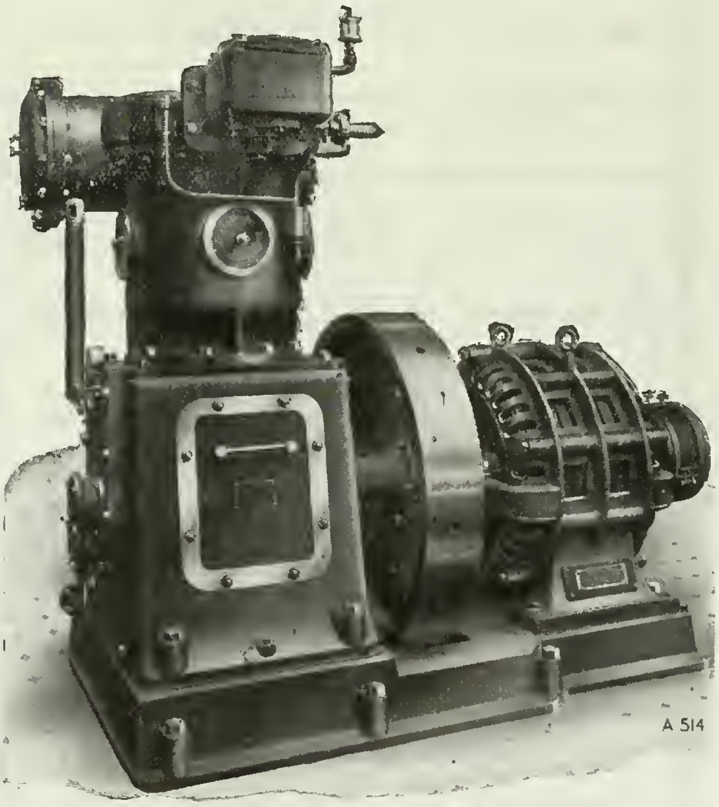
Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams : "THAINE."



"SENTINEL" AIR COMPRESSORS

Large Stocks carried in South Africa, ready for immediate delivery, Steam Driven or Belt Drives.

SOLE AGENTS :

THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

Engineering Works and Foundries.

ESTABLISHED 1888.

Wright, Boag & Co.
LIMITED.

ENGINEERS
AND
FOUNDERS.

Offices : 6, Troye Street (foot of Frederick Street),
Works: Marshall's & City and Suburban Townships.

Telephones: 1056 and 1057. P.O. Box 545. Tel. Add.: "SWIVEL."

JOHANNESBURG.

Austral Iron Works.

ENGINEERS
AND
FOUNDERS.

Special Metal for wearing plates for Tube Mills and Centrifugal Pumps.

Machine Cut Gears in Raw Hide or any Metal a Speciality.
And in Cast Iron up to 18 feet diameter.

Sole Agents and Manufacturers of Tregaskis' Drill Heating Furnace.

E. W. TARRY & Co., Ltd.
Anderson and End Streets,
JOHANNESBURG,

Phone 149. Box 1098. Tel Add.: "Austral."

P.O. Box 3960. Telephone No. 877.

W. H. BATTEN
(Late BATTEN & EDGAR)

The RAND BOILER, TANK,
:: and IRON WORKS. ::

Trucks, Steel Cyanide Tanks, Chimneys, Cones, Skips, and all Mining Plate Work a Speciality.

Office and Works: Albert, Gold, Durban and Nugget Streets, City and Suburban.

Phone 154, Central. P.O. Box 11, Denver.

DENVER ENGINEERING WORKS.
(Chisholm Stevenson & Co., Ltd.)

MAIN REEF ROAD, DENVER.

ENGINEERS, BLACKSMITHS, BOILERMAKERS,
STEEL, IRON AND BRASS FOUNDERS.
MINING MACHINERY OF ALL DESCRIPTIONS.

Structural Steel Work, Haulage Gears, Tanks, Trucks, Cones, Skips, Cases, Screening Plants, &c., for Coal Mines.
CRUCIBLE STEEL CASTINGS
in Manganese or other Alloy Analysis & Test Guaranteed.
LOCOMOTIVES & TRUCKS OVERHAULED.
FORGINGS IN IRON AND STEEL.

NOW READY.

THE S.A. MINING YEAR BOOK
1920—21.

By S. R. POTTER.

The Standard Reference Work on South African Mines.
Price 21/- net. Post free 22/6. 360 pp, In Cr. Folio, Cloth, Gilt Letters
Obtainable from the Offices of this Paper or from Argus (S.A.) Newspapers, Ltd., 82-85, Fleet Street, London, E.C. 4.

A Recognised Indispensable Work of Reference

For Mining Investors, Mining Engineers, Mine Managers, Bankers, Stockbrokers, Solicitors or anyone interested in the Mining Industry.
A RECORD OF INFORMATION concerning Mining Companies operating in all parts of South Africa. Gold, Diamond, Copper, Tin and other Mines, Collieries, Exploration, and Mining Investment Companies. DATA TWELVE MONTHS AHEAD OF THOSE IN OTHER WORKS OF REFERENCE.

The S.A. Mining & Engineering Journal

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891. ESTABLISHED 1891.

VOL. XXIX., PART II.] JOHANNESBURG, TRANSVAAL, AUGUST 28, 1920. No. 1509.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

	PAGE
Notes and News	653
Publicity for Engineers	657
The Silver Boom	659
The Coalfields of Natal: A Retrospect—II.	661
S.A. Inventiveness and S.A. Engineering Skill	663
The G.M.E.'s Annual Review of the Industry	665
The Consolidation of our Company Laws	667
The Industrial Future of the S.-W. Protectorate	668
Why the Dry Jackhammer is Doomed!	669
General Mining and Finance Affairs	671
Correspondence and Discussion: "Coal, Petroleum and Water in the Kroonstad District"	673
The Week in the Sharemarket	675
Personal	677
Trade and Industries Section:	
The Week in the Mining Material and Engineering Trades	678

Mining Notes & News.

The Edendale Flotation.

Elsewhere in this issue will be found particulars of the recently registered Edendale Developing Syndicate. The venture starts with excellent prospects, and the promoters have secured a most favourable contract to purchase the property for £10,000 cash and 3,000 in shares in any company formed with a capital not exceeding £50,000.

* * * *

Pretoria Silver-Lead Company.

As will be noticed in our advertisement columns, this company is now being floated, and owing to the very favourable report of Mr. Oliver King and its proximity to the popular Transvaal Silver and Base Metals Company, it should attract considerable attention. The results of the 20 tons of ore lately shipped to Swansea came to hand by the last mail and are highly satisfactory, showing lead just over 50 per cent. per ton of ore and silver 61 ozs. per ton. At to-day's prices, taking lead at £35 per ton and silver at 63d. per oz., this gives a value of £34 per long ton for the ore shipped.

* * * *

End of a Famous Mine.

The end of a famous mine, viz., the Durban Roodepoort Gold Mining Company, which is now in liquidation, is indicated by the announcement that a general meeting of the shareholders was called for Friday, the 30th ult., at the company's London office, for the purpose of having an account laid before them showing the manner in which the winding up had been conducted and the property of the company disposed of, and of hearing any explanation that might be given by the liquidators, and also of determining by extraordinary resolution the manner in which the books, accounts and documents of the company, and of the liquidators thereof, should be disposed of.

* * * *

Coronation Syndicate's Operations.

The latest information regarding the operations on the property of the Coronation Syndicate at Wilgepoort No. 244 is to the effect that at No. 1 shaft a 20 h.p. (nominal) boiler with hauling engine is now in position and the headgear is in course of erection. This is a three-compartment shaft 14 ft. 6 in. wide in the clear, sunk on the incline following the reef which dips at 50 degrees. It was a narrow prospecting shaft sunk to 100 feet and at this depth there are two drives of 55 feet each way. It has now been widened down to 45 feet and is being continued. No. 2 shaft is 1,265 feet S.E. of No. 1. A 20 h.p. (nominal) boiler with hauling engine, skip and pumping plant is now working at this shaft and a strong pitch pine headgear has been erected. This shaft is being sunk on the incline following the reef, which now dips at an average of 30 degrees. It is a three-compartment shaft, 11 ft. 6 in. wide in the clear and timbered. It is now down to a depth of 155 feet and sinking is being vigorously continued. Samples of the reef 20 in. wide taken on 21st August, 1920, at the bottom of No. 2 incline shaft at 155 feet gave an assay of 21·9 dwts. of gold per ton of 2,000 lbs., as per assay certificate received to-day.

Indian Currency in East Africa.

The Colonial Office announces:—In view of the fall in exchange value of the Indian rupee, which is for the present current in Eastern Africa at the rate of 2s. sterling, it has been found necessary to prohibit, with effect from 19th July, the importation of Indian coin and currency notes into the East African Protectorate, the Uganda Protectorate and the Tanganyika Territory. Persons arriving in East Africa will be allowed to introduce a small amount of Indian currency for their personal use, the amount in each case to be determined by the Customs authorities at the port of arrival at their discretion.

* * * *

Passing of a Pioneer.

Many friends will be grieved to hear that Mr. H. J. King, one of the best-known pioneers of the South African diamond fields and the Rand gold industry, passed away in mail week at Pole, Dane End, Herts., after a long and severe illness. The late Mr. King came from the United States to South Africa in the late sixties of the last century, and was amongst the first diggers on the Vaal River diamond fields—before Colesberg Kopje and the great pipe mines of Griqualand West were discovered. He subsequently settled in Kimberley in the diamond business, and joined the late Sir Sigismund Neumann as a partner in the formerly well-known firm of that name. Mr. King was for many years a leading and popular figure at Johannesburg. He was one of the members of the ill-fated Reform Committee in 1897, and after the Boer War settled permanently in England.

* * * *

Village Main Reef Life.

The chief point of interest in the report of the Village Main Reef Gold Mining Company consists in the frank intimation that the exhaustion of the property is an event of the near future. The manager, indeed, states that assuming a milling output of 18,000 tons per month, the life of the mine is estimated to be 1·3 years. A few imperfectly developed areas still remain, and doubtless certain quantities of ore will be recovered by reclamation from the old workings: but it would look as though operations must cease for good within about a couple of years. As to the results of the past year, the net profit, including £32,100 premium on gold, amounted to only £21,100. The dividend of 10 per cent. absorbed more than double the year's earnings: in addition the shareholders received a bonus of one Village Deep share in respect of every four Main Reefs. Hence the distributions of 1919 may be regarded as a sort of final flare-up. The surplus cash assets work out at £90,000, equivalent to about 4s. per share—the present selling price, apart from what will be realised by the fixed assets. Consequently, holders of the shares may as well "see the thing through." During its successful career the company has paid out over £1,000,000 in dividends.

* * * *

Mr. Strakcsch's Views.

Mr. Henry Strakosch, Union Corporation's managing director, has returned to London after a visit of some months to South Africa. Interviewed by the *African World*, he expresses very bullish views regarding the Union's future, especially emphasizing the broader and more stable basis of the country's prosperity. He was much impressed by the "very considerable" progress of the agricultural industry since his previous visit, instancing cotton and tobacco as enormously improved. Fruit-growing exports to Great Britain should gradually and steadily increase. Formerly one could travel miles without seeing any cattle, but "to-day it is impossible to go very far without encountering droves of fine fat cattle that plainly showed pedigree origin." Regarding the mining industry Mr. Strakosch was more guarded. The immediate future is difficult, he said, as it so very largely depends upon labour, but he was able to say that the more responsible leaders have commenced to recognise that there is a limit beyond which the mines cannot go. He is hopeful that the Select Committee will report favourably to the Union Parliament regarding his proposals on currency and banking reform, and that the measures will be dealt with this session. He regards the continuance of a gold premium as probable for some time yet.

Gold Premium Influences Ore Reserves.

Mr. E. Birkenruth, at the annual meeting of the Shamva Mines, said: "It will be obvious to you that the gold premium plays a considerable rôle in an estimation of 'life,' as it enables us during its continuance to bring into the reserves a very large quantity of low-grade ore which at the standard price of gold might not be payable. You will note that we have during the last year brought in 558,000 tons of an average estimated value of 3·2 dwts., and that our profits were derived from milling about 599,000 tons of an average estimated value of 3·5 dwts. The excess ore mined amounted to 273,000 tons, and you will see, therefore, that we only drew on our published ore reserves to the extent of 45·5 per cent., leaving the estimated average value of the balance of 1,982,000 tons approximately at their estimated value as on December 31, 1918."

* * * *

A South African Land Boom!

If signs go for anything, a revival in South African land shares is on the *tapis* in the near future, particular attention having been directed thereto by the excellent results achieved by the New African Company, and the important developments announced in connection with other land-owning companies. In some quarters Chartereds are expected to lead the forward movement, in anticipation of the award to be made to the company by the Cave Commission. There is now available the directors' report of the H.E. Proprietary (New), showing a net surplus for 1919 of £12,450, which is added to general reserve account, thereby raising the total to £30,452. The year's result exhibits a considerable improvement upon that of the previous year, and since the close of the period covered by the accounts, a further marked improvement has been shown. The conservative policy adopted by the subsidiary concerns in restricting dividends and strengthening reserve, has been followed during the period under review.

* * * *

Bechuanaland Exploration.

For the year ended March 31 last the Bechuanaland Exploration Co., Ltd., reports a profit of £20,530 (nearly £14,000 of which has been derived from the surplus on the realisation of shares, etc.), against £21,786 for 1918-1919. A dividend is recommended of 8 per cent. per 10s. share, as compared with 7½ per cent. last time, which will leave about £3,000 (subject to any excess profits duty and to directors' fees) to be carried forward, against £6,862 brought in. The shareholdings are entered in the balance sheet at £188,348, against £145,889 a year ago. These are of very varied character, and a list of them, without, however, details of the amounts of the individual holdings, is appended to the report. The company, moreover, owns 260,651 acres of land in Southern Rhodesia and 52,400 acres in Northern Rhodesia. Including a substantial liquid proportion the company's total assets are conservatively valued at over £450,000, against an issued capital of £300,886 in 10s. shares.

* * * *

The Diamond Trade.

Conditions in the diamond trade during mail week underwent a change for the better. In place of the almost utter stagnation from which the trade has suffered for some weeks past—a period of digestion, so to say, after the feverish and really wonderfully long spell of activity—buyers are again coming forward. In fact, as regards all classes of rough and cut goods, things are picking up all round. There is no return to the normal yet, of course, but that in the midst of the holiday season, and when the dulness might reasonably have been expected to be prolonged, transactions up to something like 30 per cent. of normal should take place is decidedly encouraging. When buying has been on so extended a scale there must be a little difficulty in determining what normal is. Anyhow, our reports go to show that the demand is growing again. In some quarters the suggestion is frequently made that business decreased in consequence of the high price of the stones. There is, of course, absolutely no truth in the statement. Prices are not likely to be lowered, owing to the contracts entered into. Having said this it seems almost superfluous to add that all business done during the week was at old rates.

Diamond Digging.

Mr. H. Warington Smythe, Secretary of Mines and Industries, states in his report for 1919 that during the year the price of diamonds has continually risen, until it is a question whether the prices locally have not gone too far. "As regards the diamond mines which produce the bulk of the output," he adds, "steps were taken by the chief producers, including the Government of the Union, as representing the South-West Protectorate, to meet and discuss the question of limiting production in order not to overstock the market. The result has been satisfactory and an agreement was come to. With regard to alluvial stones, the prices have soared to such an extent as to tempt people of all kinds to try their luck on the alluvial fields. I fear the result has been the usual one of a few being lucky and the rest hardly making living expenses. Experience shows that diamond digging as a business proposition is a low-grade one, requiring capital to employ labour in sufficient quantity to enable a large area of ground to be turned over within a short time."

* * * *

Cornish Tin Industry.

There is widespread regret, but little surprise, that the second deputation from the Cornish tin mining industry, which the President of the Board of Trade, Sir Robert Horne, received in mail week, met with as scanty success as its predecessor. Mr. F. D. Acland, M.P., put forward the suggestion that a public utility society should be formed with a capital of £300,000, half of which should be subscribed in Cornwall and half provided by the Development Commissioners, for the purpose of carrying on development work only. Sir Robert Horne bluntly retorted that the funds at the disposal of the Commissioners were all pledged and there was no money available for the purpose proposed. He added the cold consolation that he was strongly of the belief that the money should be found privately. The next word obviously lies with Cornwall, and the many capitalists at home and abroad interested in the maintenance and progress of its mining industry. Two rays of light have emerged from the recent blackness. In the first place tin is now a much steadier market than a short time ago, and secondly Mr. Oliver Wethered has been prevailed upon to take up the highly responsible post of President of the Cornish Chamber of Mines. If Mr. Wethered, with his long and unique experience, his love of Cornish tin mining, and his great personal and financial influence, cannot save the threatened Cornish mines then nobody else can. Steps are being taken to bring together Cornish, Malayan, Nigerian and Bolivian producers, to see whether a minimum price for tin cannot be fixed.

* * * *

A Premium for Gold Producers?

Mr. G. H. Bailey (Counsel for American Mining Congress), in a recent address to New York State bankers, argued in support of the proposal recently made to Congress to pay a premium to gold producers and impose an excise on gold manufactures. A gold dollar in the vaults of the Federal Reserve Bank serves as basis of deposit liabilities of $2.50, and may serve for a credit extension of from $19 to $35. In the year ended 1st May last U.S. lost $445 millions in monetary gold stock, and the outflow of gold reserve is now very low. Deflation (*i.e.*, contraction of currency volume) is compelled, and this must proceed at the rate of 20 to 35 times the loss of gold. Such rapid deflation must dislocate industry. Last year manufacturers used $100 millions of gold in the arts and industries. Yet only $58½ millions of the metal was produced in U.S. last year, and this year only $40 millions are likely. U.S. Government is selling gold for industrial consumption at pre-War price of $20.65 per oz., which is less than the cost of production. Average wholesale price of all commodities last year was 112 per cent. higher than in 1914. Had gold been subject to the law of supply and demand it would have at least increased in accord with the general average of commodities. U.S. gold producers would have received for their 1919 output, sold to industrial consumers for $58½ millions, an additional $65 millions.

Rhodesia Broken Hill.

Although as inevitable from the fall in the price of lead, a lower figure is now being received by this company for the metal sold, nearly all recent production is being absorbed and delivered at the by no means unsatisfactory average of £37 a ton. An official communication reminds shareholders that it has already been proved that no unusual difficulties will be experienced in producing electrolytic zinc, although the existence of a supply of pyrites required for the manufacture of sulphuric acid needed in the treatment of zinc and vanadium ores by direct leaching and by burning out the zinc from the ore, is still in the course of being proved. The main shaft has reached a depth of 109 ft. without trouble from water. What is less satisfactory is the continued absence of any indication of the cost of production. Many factors have intervened in the last year or two rendering the more or less rough earlier estimates made by the students of the company's affairs out of date.

* * * *

Shamva Mines' Position.

Taken all round, the report of the Shamva Mines for 1919 makes a better showing than either of its two immediate predecessors. The gold realised an average premium of 21s. 8d. per ounce, while costs showed a trifling reduction instead of an increase—thanks partly to expansion in the tonnage of ore milled and partly to the absence of certain adverse influences which prevailed in 1918. Thus the net profit totals £178,500, as against £111,800 for the previous year and £164,900 in respect of 1917. In this connection it should be pointed out that depreciation on plant, etc., is once again written off reserve, but as the present appropriation extinguishes that entry a different course will have to be followed in the future. After payment of dividends totalling 22½ per cent.—an increase of 2½ per cent.—the substantially expanded balance of £93,200 remains to be carried forward. Actually the liquid assets as on 31st December were somewhat exceeded by the liabilities; on the other hand, the sum locked up in stores and materials, although not so large as before, stood at £118,100. Not only have the ore reserve figures already been published, but they have been superseded by the statistics as to the position on 31st March, which at 2,004,000 tons record an expansion of 22,000 tons on the quarter. The comparatively small decline of 41,000 tons shown by the December estimate as compared with that of twelve months previously was entirely due to curtailment of development. Supplementary to this subject, the consulting engineer interestingly discusses several points. Of last year's tonnage milled 326,300 were from the reserves and 273,000 from excess areas, the former averaging 4 and the latter 3 dwts. "The percentage of excess ore taken depends on the grade milled; at 3·3 dwts. we could take 65 per cent. of excess rock and should then only have to develop about 200,000 tons a year. On this mine, with the assurance of so much undeveloped excess ore, it is not in my opinion," says Mr. Parsons, "a good policy or economical to develop too far ahead of our requirements." In the main section represented by the large open cast working, which now measures in length over 1,150 feet and at its greatest width about 200 feet, stoping continued to disclose new payable excess ore. In the west section, south parallel, no more profitable ore has been developed in the extreme west end, the shoot thus remaining at 470 feet. The other points of development are not showing anything noteworthy. In concluding his report the consulting engineer remarks that if the average value of the ore reserves were reduced to a present-day profitable grade a much larger figure could be shown, and adds: "It is not too much to say that so long as we show good profits as we can to-day on ore the recoverable value of which is 3 dwts. the prospects of a long life for this mine were never brighter. Not only that, but taking the low-grade ore and treating it as we are now able to do is improving the shape and safety of our workings, and this, in course of time, will help to keep costs low and render workings safer, and the best sections which remain will be more readily approached."

SIEMENS BROTHERS

& CO., LIMITED

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE,
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

WIRES

Rubber Covered. Gutta-Percha Covered
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

PRIMARY CELLS

Fluid and Dry.

Representative in South Africa :

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams: "SIEMENS,"**

Publicity for Engineers.

THE IMPORTANCE OF THE ENGINEER HAS NOT BEEN GENERALLY RECOGNISED BECAUSE ENGINEERS DO NOT ADVERTISE THEIR ACCOMPLISHMENTS—PLEA FOR A CHANGE IN THIS POINT OF VIEW—EXCERPTS FROM ADDRESS BEFORE THE ORGANISING CONFERENCE OF AMERICAN ENGINEERING SOCIETIES BY THE PRESIDENT OF THE McGRAW-HILL COMPANY.

By JAMES H. McGRAW.

Publicity and engineers do not mix. In the very words of my subject, there is an apparent contradiction. In the past, publicity has been abhorrent to the engineer. It seems to be true that the engineer, because of his training or his background, has developed a state of mind which omits publicity. At any rate he has done a poor publicity job for himself.

The average engineer is self-conscious; he ought to be class-conscious. If I should ask the men in this hall to get up one by one and tell who they are and what they have done, there would be an instinctive reaction in the mind of each man—a feeling that this was out of place. If I should ask each man to get up and tell something about his neighbour, I should find that each neighbour, once he got acquainted with the man next to him and understood what he was doing, would be as human and as generous-hearted in telling about his brother engineer as is any professional man.

In other words, engineers are glad to have publicity, but don't like to talk about themselves. Yet the engineer and engineering are faced to-day with perhaps the greatest opportunity for publicity that was ever given to a profession or to an industry. The public has come to appreciate the accomplishments of the engineer. Laymen in general know that the Great War was fought on an engineering basis. They have begun to understand as a whole that engineers as such are doing an important part of the world's work.

While I am here as a delegate from one engineering society, I am here primarily because I see in this meeting one of the most forward steps that have been taken in the history of engineering organisations. I have a keen appreciation of the constructive work that has been done by the so-called Founder Societies in engineering. I have seen these societies grow from small numbers to large. It would be hard to measure their contribution to the cause of engineering.

The Engineer's Relation to Growing Industrial Problems.

The problems of engineers have grown with the ever-widening application of engineering to industry. The historical division of civil and military engineers has been subdivided. To-day we have mechanical engineers and electrical engineers, and under these we have specialised groups. In another great field of applied engineering we have the chemist. In the extractive industries we have the mining engineer, and in all these branches have grown up specialists.

And now we are meeting to-day representatives of all the different groups, to form an organisation, not to deal with further technical problems, but as a class, to organise effectively for the protection and welfare of the engineer class, in order that we may effectually influence legislation and public sentiment, both for the advantage of the engineer class and for the advantage of the people and the nation as a whole, especially in dealing with the many problems with which engineers are more conversant and are better and more independent judges than other classes of citizens.

I think the idea behind this conference is far-reaching. I think this conference has greater opportunities to get big movements started than any similar conference that has been held, providing it sticks to the big things that can be done, and is not confused by the details of getting them accomplished.

Opportunities for General Publicity.

One of the most constructive things this proposed organisation can do would be to visualise the opportunities for publicity for the engineer and perfect some method of securing it. The engineer to a certain extent is a romantic figure in the public mind. He appears now in the lighter works of fiction as the hero, instead of the pioneer farmer, or lawyer, or the man of business, who used to be the heroes. But the public as a whole is not conscious of the fact that the engineer is a much greater factor in our civilisation to-day than he is given credit for. A comparatively small group believes, as H. G. Wells has expressed it, that the future mind will be the engineering mind, and that the traditionalist, as he calls the lawyer, must give way to the man who faces facts as facts—the engineer. Herbert Hoover summed up the engineer's point of view from another angle when he said in his presidential address at the annual banquet of the American Institute of Mining and Metallurgical Engineers:—"We have in this country probably one hundred thousand professional engineers. The events of the past few years have greatly stirred their interest in national problems. This has taken practical form in the maintenance of joint committees for discussion of these problems and support to a free advisory bureau at Washington. The engineers want nothing for themselves from Congress. They want efficiency in government, and you contribute to the maintenance of this bureau out of sheer idealism."

The engineer is in a difficult position. As an individual, except under very specialised conditions, he may not advertise. Because he has held himself professionally aloof, he has got too little credit for the kind of thinking he does, and his place at the world's council table is not recognised as it should be.

The public is conscious of the engineer as a good servant, but is not conscious of the engineer as a leader and as a man upon whose thinking their very life depends to-day. Food, water, heat and clothing—all the necessities and most of the luxuries of life—depend on the engineer. Everywhere you see the evidences not only of his work, but of his think-

NOTICE.

PHOENIX PIPE AND METAL COMPANY
No. 6, LONDON HOUSE, LOVEDAY ST., JOHANNESBURG.

PIPING, ½in. to 16in., in Steam, Black and Galvanized.
VALVES, all kinds and sizes, also all Pipe Fittings.
CORRUGATED IRON, FENCING MATERIAL, TRUCKS, RAILS, ETC., AND GENERAL MACHINERY.
We carry large stocks of the above, in both new and second-hand, and solicit your enquiries.——TELEPHONE 1801, CENTRAL.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%,

Overseers.—25 Certificates out of a total of 37 in South Africa in 1920, Our passes during a recent 6 months (1919/20) were 95%.

Surveyors—Our new class obtained the only Certificate in South Africa, March, 1920, Examination. Over 60 successful candidates have received sectional or other tuition from us,

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

ing, for it is the engineer's thinking for which he seeks recognition, as well as his work. Only engineers try to find the best answer for an economic problem by the consideration of all the factors. In other words, the great contribution of the engineer is not more technical knowledge and specialised information, but an all-round consideration of the problem presented from the point of view of service.

That is what the engineer has to advertise, but to do it he must become a better business man, he must shuffle off some of the apparent narrowness that goes with a specialised kind of thinking, and his group must give expression to the idea that he is the man who makes our present life possible. In other words, the engineer must be human as well as an engineer.

The public is not greatly interested to-day in the compensation received by engineers, but let the public once visualise the great work of the engineer and adequate recompense naturally follows. Let us get into the public mind that the word "engineer" comes from the same root as engine—power applied to the doing of work. When we think of the engineer we must think of power, of a man who works with mathematical certainty, of power which is the engineer's right, and which he must put over to the public mind in order to gain and maintain his rightful place among the great forces of the world.

Popular Articles on Engineering.

There are four or five great mediums for publicity for engineers: the newspapers, the general magazines and weeklies, the technical and industrial press, papers before associations and societies distributed to specialised lists, and the public platform.

A committee which could do much constructive work might be organised as a result of the proposed federation to analyse and develop the opportunities for publicity in all these fields.

When it comes to publicity in general magazines of wide circulation it is best to bring in the point of view of men who make their living by appealing to the public. What the general magazine wants is not an engineer's story of a development so much as an interpretation of the public conditions of that engineering development written from the point of view of the particular magazine or weekly. Some magazines will be interested in pictorial developments, others in a thoughtful presentation of the relation of a particular enterprise to the economic development, and others to the purely human interest phases of the project.

Examples of this sort may be found in every industry. The electrification of the railroads, the development of power of our eastern seaboard, the flood control of the Mississippi, the reclamation of our desert lands, the electric propulsion of our battleships—all these offer opportunities for publicity for the engineer.

Local Opportunities for the Engineer.

Great as are the accomplishments and dramatic as have been the accomplishments of engineers during the War, after all, the mass is made up of the individual accomplishments, and in the local sections and in the city and town there is to-day public work for the engineer to do, which in itself will give publicity to the engineer, provided he grasps the opportunity. Engineers in these matters are proverbially modest and unassuming. Moreover, they often fail to realise the publicity values in the particular undertaking which they have set out to accomplish. They forget that a large percentage of the public has not the same point of view, and the same interest in the details of technical accomplishment that they have.

The public platform offers another opportunity for publicity, which in general is by no means capitalised by the engineer for reasons already given. Yet in hundreds of towns every week the engineer's place in the economic life of the community and his natural place in the development of local enterprises can find an audience before Chambers of Commerce, merchants' associations, and other similar business organisations.

The technical press in relation to this problem of publicity serves a twofold purpose. It is, on the one hand, a medium of publicity, and on the other, being a partner in the enterprise, it can be put to work to help interpret engineers to other groups and other industries.

I should like to see grow out of this conference a thorough understanding of the opportunities for the engineer and the opportunities for the independent technical and engineering press to forward these conceptions of engineering. Each branch of engineering must give freely of its best in exchange for the best of others; must recognise the value of gaining by giving.

We are standing on the threshold of an even greater development in engineering and in engineering accomplishment. It is time to forget our partisan association ideas, if we have any. It is time that we put aside petty differences of opinion as to authority. It is time that we met together for a common purpose of establishing a common understanding of the needs of all engineers, and to these new ideals I pledge the support of the technical press.

TO LET ON TRIBUTE.

VIKING & CROWN MINES.

FOR PERMISSION TO EXAMINE,
APPLY :-
P. ZAFFERE,
ALPES MINES,
SALISBURY,
RHODESIA.

ALLEN, WACK & SHEPHERD, LTD.

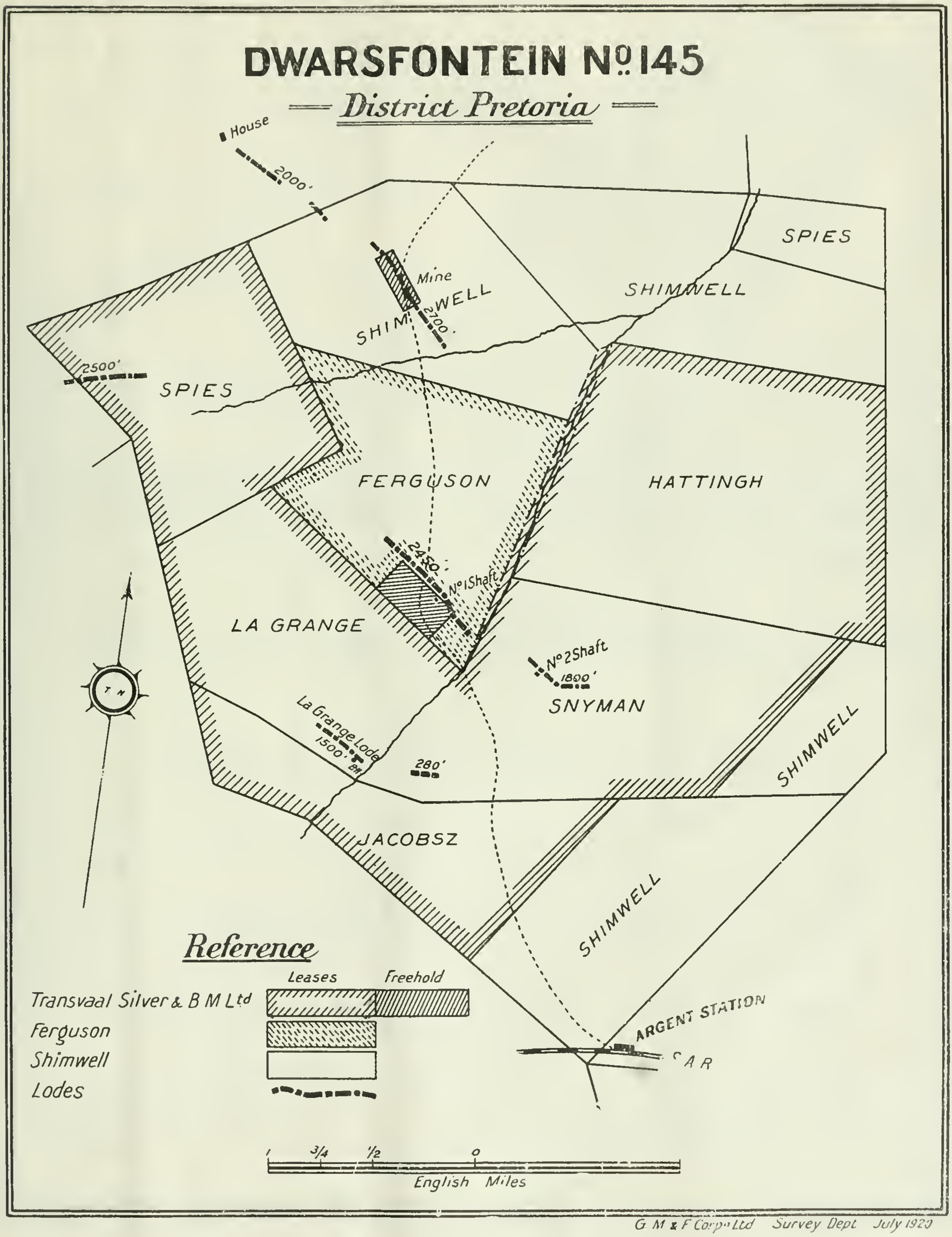
Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

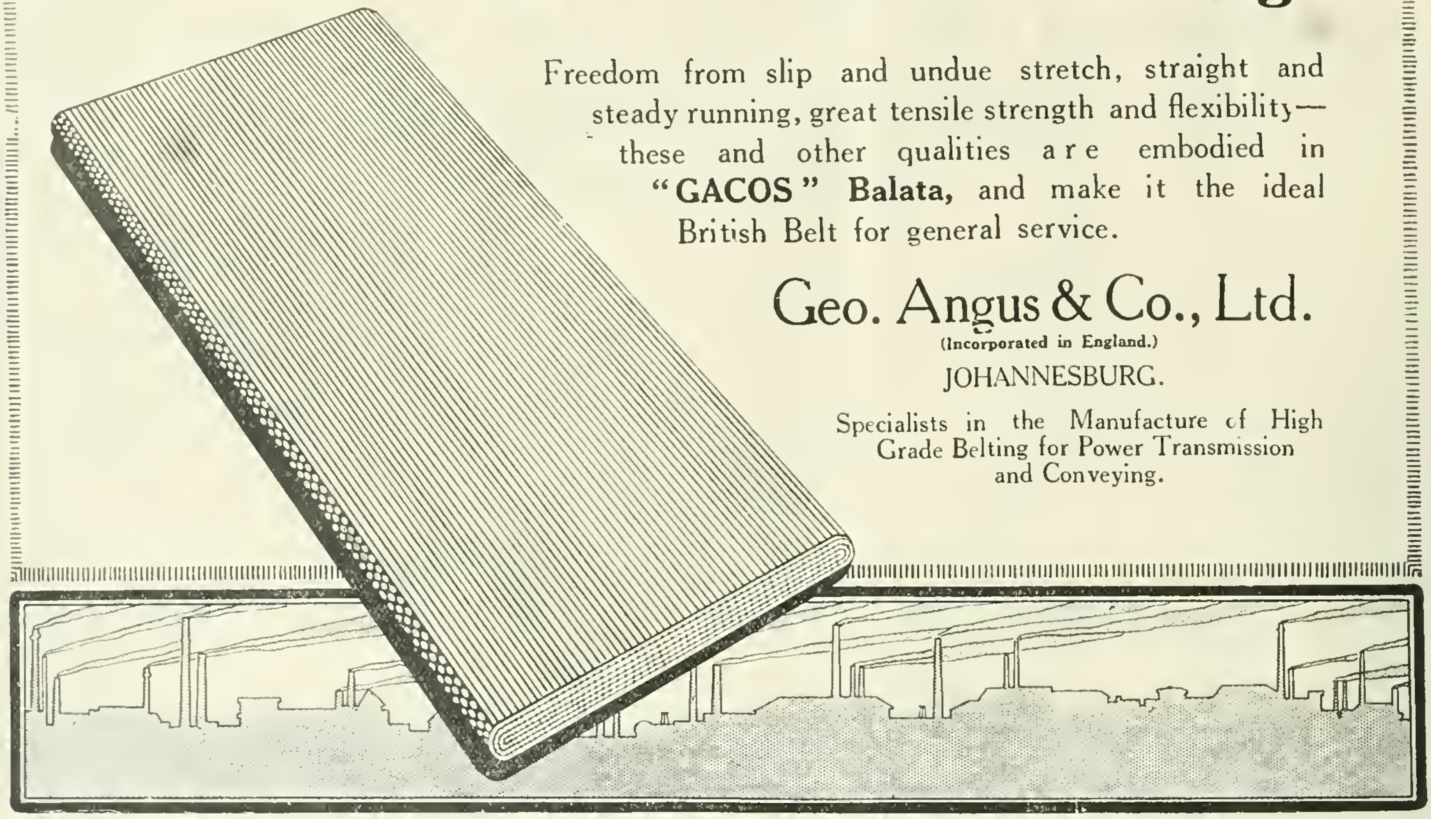
Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

The Silver Boom.

The Farm Dwarsfontein, showing various workings and areas leased by Transvaal Silvers, Shimwell, etc. The Shimwell portion was floated this week under the name of Pretoria Silvers.



G M & F Corpn Ltd Survey Dept July 1920



"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

C. C. WAKEFIELD & Co., Ltd.,

Manufacturers of

High-Class Lubricants

FOR

RAILWAY, MARINE, ELECTRICAL, MINE and COLLIERY WORK.

Makers of the Famous

"CASTROL" MOTOR OILS.

Patentees and Makers of
MECHANICAL LUBRICATORS.

P.O. Box 2123. Telephone 6418 Central
24/25, OCEANA BUILDING,
Simmonds Street,
JOHANNESBURG.

P.O. Box 1521.
HULSTON'S BUILDING,
Smith Street,
DURBAN.

Telegrams: "CASTROL."

The Coalfields of Natal: A Retrospect.—II.

By James Cumming.

The first mention of coal in England is in the records of the Abbey of Petersborough in the year 850 A.D., which mentions an item of 12 cartloads of "fossil fuel."

Mr. Peter Smith of the farm Dundee was the first to begin and work coal in Natal, if not in the Sub-Continent, and begun as early as 1865. Some years later Mr. Still became associated with Mr. Smith, and mainly through their exertions the famous Dundee Coal and Estate Company came into existence, and of which the late Sir Benjamin W. Greenacre was the first and only chairman during his life time. The Dundee Coal Company was formed in January, 1889. The working capital was £50,000, which was promptly subscribed in the Colony. Mr. Watty Rowan was manager. Within twelve months of starting up Mr. Rowan had the equipment of the mine finished and development well forward, and a branch line of railway finished connecting with the main line of railways. The production of coal on commercial lines was at last launched, and after surviving the ordeal of trials, made at Pietermaritzburg and Durban, it subsequently reached the Point and found its way on its merits into the bunkers of steamers in the roadstead. Ocean steamers in those days were not berthed alongside the wharfs as one sees them today. From the opening of the Dundee Company the coal industry of Natal has developed at a surprising rate. The construction of the main railway line as far as Glencoe was successfully completed at the time the Dundee Company was floated. I remember the opening ceremony well. I can also recall my first visit to the coal pit. My late wife and the late Mrs. Simpson, wife of the late Mr. D. H. Simpson, then Traffic Superintendent, were the first ladies to venture down a coal pit in Natal. They enjoyed what was to them a novel experience.

The name of Mr. Peter Smith's farm is perpetuated by the town of Dundee, which nestles among the hills, of which Talana, of Anglo-Boer war memory, is the most famous though not the most picturesque.

Companies have been formed and fresh collieries opened up in all parts of the coal-bearing area originally reported on by Mr. North. Mr. North computed that the workable coal area of Natal as it then was comprised a superficial extent of 1,350 square miles. He assumed the coal to have an average thickness of 4 feet, and after allowing for faults, worthless coal and denuded ground, estimated the available coal at 2,073,000,000 tons. These figures have been augmented since to the tune of a like number, or even more, tons of coal by the addition of the Vryheid, Utrecht and Paul Pietersburg coal-bearing districts to the Province of Natal. At the period when Mr. North visited Natal, Vryheid was still under the sway of the bloodthirsty Zulu king, and Utrecht and Paul Pietersburg were attached to the Transvaal Republic.

Most of the early work done on the coalfields was below the Biggarsberg. Mining was conducted under disadvantageous circumstances compared with the two collieries over the 'Berg. The seams of the first named are much smaller and costs consequently are greater. No wonder they could not compete successfully against the thicker seams. Struggle as they would, nearly all eventually had to close down. The Natal Steam Colliery is the only mine of those started up in these far-away days that still survives. I was fortunate in introducing the gentleman (Mr. H. R. Powell) who floated the company in London, to the owner of the coal rights, the late Mr. James Ramsay. For many years this company has regularly paid ten per cent. on its capital to its shareholders. The company is fortunate in possessing a seam of fair quality coal 4 feet thick.

Foremost among the men in these opening days was the late Mr. James Ramsay of the Inkunzi Mine, or better known as "Ramsays." It was the coal from the Inkunzi Colliery that gave Natal coal the good name it commands to-day. "Ramsay's Coal" was a household expression, and one which other mines had been known to conjure with. During the boom in coal Mr. Rogers Jenkins came along and floated the Inkunzi into a limited company. Mr. John Tonkin operated for a time on a field of coal called, funnily enough, Acol, lying a few miles south of Wessel's Nek Station, but had to withdraw owing to the abnormal quantity of sulphur in the water drained from the coal seam. Mr. Tonkin tried the Rand for a few years, but found his way to the Vryheid district, where he was instrumental in securing and establishing the well-known Hlobane Collieries. The present management of these collieries have entered into a contract to supply the South African Railways with 20,000 tons of coal per month at 7s. per ton; and the Government have taken over the Company's line which runs from Vryheid East to the Colliery, 17½ miles in length, at a cost of £70,000 cash. The prospects of this company are very bright. Two brothers named Brangham next attempted to work Acol, but met with the same misfortune as befel Mr. Tonkin. They finally finished with coal ventures after unsuccessfully trying to mine a thin seam some miles south of Elandslaagte Station. A Maritzburg company worked a mine adjoining the Inkunzi, on the Steinkol Spruit, near Wessels Nek Station, known as the Central, but as competition became keener against the Over-the-Berg Collieries, it closed down after a precarious career. In these days I opened up a coal field owned by a syndicate of Makolwa natives. The coal was excellent in quality, but rather thin, about 1 ft. 9 in. after holing. Several tons were exhibited at the Durban Agricultural Show in 1898, and was awarded a silver medal. My efforts shared the same fate as the others. The Brothers Sneddon worked a seam near Ramsay's in the Steinkol Spruit

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.
P.O. Box 4047. Telegrams: "THAINE."

Valley, but owing to transport difficulties they also trekked to above the Biggarsberg and opened up a nice " bit " of coal on the Buffalo side of the Talana ridge, where they established themselves in the industry. The mine went by the name of the Natal Marine Collieries. The Sneddons have never looked back since. Once upon a time (shortly after the Anglo-Boer war) one of the brothers received from the writer full and complete records of a small but valuable area of coal in the neighbourhood of the spot where the ill-fated train was wrecked when carrying refugees from Johannesburg at the time of the fateful Raid. He kept the records for a time, and when he returned them remarked: " It's (the coal area) too sma' Jimmy! Only a patch o' coal." Judge of my surprise about six months later when one day I espied an announcement setting out particulars about the flotation of this very property under the attractive designation of the " Hatting Spruit Collieries, Ltd." My astute " friend " made quite a good " pile " out of the venture. Meeting him one day in Johannesburg I naturally bumped him with the interrogative, " I was under the impression the field of coal I offered, now the Hatting Spruit Collieries, was too small a patch for your purpose?" " O, aye, Jimmy; but I got it for nothing, ye ken." " Scotch like," I fancy I hear you murmur. No, sir, not Scotch like. They do not do such " things " in Scotland. They only become possible when one leaves the country of his birth, in a country like unto this, where one is apt to succumb to the methods in vogue among those who make up one's environment. I leave the incident at that. Previous to the Anglo-Boer war several Ladysmith syndicates vainly tried, one after the other, to make a payable mine of the Elandslaagte Colliery, until Mr. John Boles assumed command. He it was who transformed a series of coney warrens into a well-developed mine by the adoption of sound mining principles. From that time to the present the Elandslagte has been a regular contributor to the increasing coal output of the Province. Mr. Boles yielded to the glamour of the Rand, and from there he went to the Orange Free State, where at Coalbrook he opened and mined for several years a colliery of that name for the Clydesdale Company. Mr. Boles is at present actively engaged. though climbing into the period when one is expected to take it easy, as manager of the Clydesdale Collieries at Blackhill, near Witbank In proof of Mr. Boles' ability as a first-class coal man it is safe for me to say there is not a colliery in the Union that pulls its quantity of coal with the same small number of workers. In every particular the Clydesdale is a model colliery, and a credit to everyone connected with its management. Naturally, when Mr. D. Harris succeeded Mr. Boles at Elandslaagte he found a mine in being. Mr. Harris, however, began at once to apply the then latest mechanical appliances. He was the first to instal coal cutters, which materially helped his output, and which for 17 years steadily increased under his able management. Mr. Harris is to-day manager of the Tendega Colliery at Zuinguin, near Vryheid. I had the opportunity of my life, so far as coal was concerned There is a well-known axiom that says: " Opportunity is knocking at the door, but the opportunity of a life time must be seized during the lifetime of the opportunity." It came in this wise. Mr. Wm. Ross, the then well-known railway contractor, and director of the Cassell Coal Company, and the May Consolidated, both now relegated to the limbo of the past, paid a visit to the Natal coalfields some time after the Raid, and we chanced to meet. We were well known to one another. As a matter of fact we were fellow directors (and sufferers) of a drilling syndicate that bored for coal on an adjoining farm to the Dundee Coal Company's ground and got diabase instead of coal, which dissolved the syndicate, and our hopes. Mr Ross informed me he was in search of a thicker coal seam than what was being worked under the Biggarsberg, and quietly advised me to look for it. I ignored the hint, much to my regret, because I was so obsessed with my belief that all would come right with the thin, yet good, seams of the Steinkol Spruit and Waschbank Valley. Later down came that petrel of coal, Mr. Dundas Simpson, with a diamond drilling outfit, and met the luck he deserved, when he struck coal on which the famous Navigation Company have worked ever since, and which not only brought a deserved fortune to Mr. Simpson, but demonstrated beyond a doubt the excellence of Natal coal as an article fit for household purposes, and for driving ships.

(To be continued.)

DRILL STEEL

CROWN RAZOR
For Difficult Drilling.

TROJAN
For Ordinary Work.

Can furnish all grades of Carbon and Alloy Steels.

Write us for Prices.

Horace T. Potts & Co.,
PHILADELPHIA, P.A., U.S.A.

Cable Address: TURLEY, PHILADELPHIA.
CODES USED: A 1, Bentley's, A. B. C. 4th and 5th Editions, Western Union, Universal Edition; Western Union, Five Letter Edition.

SOUTHERN VAN RYN

Some good reasons for investing in this great OUTCROP mine on the Van Ryn and Nigel Reefs :—

(1) The Mine is unique in the world's greatest goldfield.
(2) 2,146 Gold Claims entirely owned by Shareholders—no Government share of profits to pay.
(3) Over £40,000 cash in hand and new working capital continually being paid in.
(4) £50,000 worth of plant, equipment and stores all paid for.—No debentures and no debts.
(5) Two pay reefs to draw from, whose steep dip means large tonnages and cheap mining. The Nigel Company earned nearly a million profit on the Nigel Reef alone, from about one eighth of the number of claims on the Nigel Reef owned by Southern Van Ryn.
(6) Will begin gold production in October from the 30,000 tons of pay reef already developed.
(7) 5,000,000 tons of good coal on the property, which can be mined at 3s. per ton. This coal is already supplying power to the gold mine, and is alone worth more than the Company's capital.

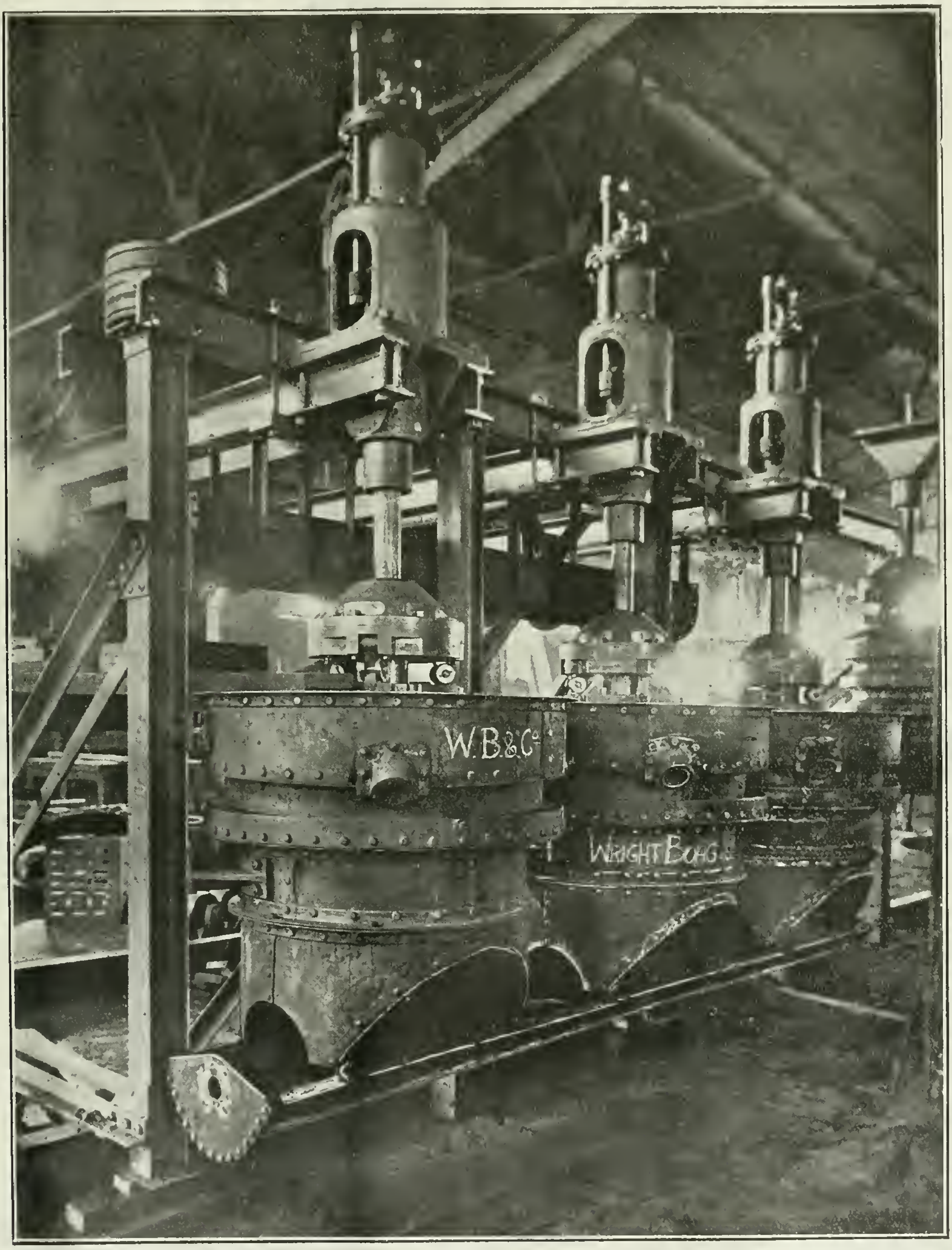
Buy while the market is low for the rise which is coming: or, better still, buy to hold for dividends, in

THE COMING GREAT MINE OF THE FAR EAST RAND!

For further particulars write or apply to the Managing Director, Mr. W. E. BLELOCH, 3, Transvaal Bank Buildings, Fox Street, Johannesburg.

South African Inventiveness and South African Engineering Skill.

Continuous Centrifugal Separator for the Purification of the Raw Sugar Juice.



A battery of four of these machines has just been completed at Messrs. Wright, Boag's workshops; the dimension of the basket is 2 feet long, running at a speed of 2,300 revs., treating the material with a force of nearly 2,000 times its own weight; this means that every lb. of material treated will become nearly a ton. The same applies to the stresses which the buckets have to stand; the internal pressure with the charged machine, including its own weight, is over 1,000 ton stress. The machines are of a continuous type and the buckets are opening and closing while the machines are spinning continuously, therefore, they had to be constructed with very great accuracy. The buckets are all completely turned in one setting and at the test run made of one of the machines it worked very satisfactorily, so that credit must be given to Messrs. Wright, Boag & Co. for the efficient manner in which the work has been carried out. The machines are now dismantled and on their way to their destination, viz.: Messrs. Reynolds Bros., Ltd., Isezela, Natal, who ordered this plant with the object of obtaining quicker and cheaper clarification of the sugar juice, eliminating decanting and filter presses.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

SOUTH AMERICA

HEAD OFFICE:
MONTREAL, CANADA

We offer a complete banking service in the following countries, special attention being given to the handling of collections.

ARGENTINE
Buenos Aires.

BRAZIL
Rio de Janeiro, Santos, Sao Paulo.

URUGUAY
Montevideo.

VENEZUELA
Caracas, Ciudad Bolivar.
Maracaibo, Puerto Cabello.

COLOMBIA
Barranquilla.

BR. GUIANA
Georgetown, Rose Hall,
New Amsterdam.

Also 77 Branches in
CUBA, PORTO RICO, DOMINICAN REPUBLIC, HAITI, COSTA RICA, BR. HONDURAS, BRITISH WEST INDIES and FRENCH WEST INDIES

590 Branches throughout CANADA & NEWFOUNDLAND

LONDON
Princes St., E.C.

PARIS
28, Rue du Quatre-Septembre.

NEW YORK
68, William St.

BARCELONA
Plaza de Cataluna 6.

THE ROYAL BANK
OF CANADA

CAPITAL PAID UP & RESERVES $35.000,000
ASSETS OVER - - - - $560.000.000

NATIONAL TRADING CO.,
Importers of
MINING AND ENGINEERING MATERIALS,
54/58, Cullinan Buildings,
JOHANNESBURG.

Box 2762.
Phones 1295 and 1250.

Telegrams:
"GLORIA."

SOLE SOUTH AFRICAN AGENTS FOR:

Quaker City Rubber Co., Philadelphia.
Beltings, Hoses, Packings, &c.
Daniel's P.P.P. Packing.

Sirius Autogenous Works Co., London.
Oxy-Acetylene Welding & Cutting Plants.
Acetylene Generators, Accessories, &c.

Patent Pulp Manufacturing Co., Thetford.
Red Hard Miners' Hats.

Overton Bros., Hull.
Wire Ropes for Hoisting and Hauling.

NO MORE DUST.
Use BRITTANIA I WITH SOLID STEELS
AND BORE 12-14 HOLES
PER SHIFT.

THE CLIMAX ROCK DRILL & ENG. WORKS, LTD.,
Phone 2190. Southern Life Buildings, Johannesburg.
Agents: S. SYKES & CO., LTD.

The G.M.E.'S Annual Review of the Industry.

THE GOVERNMENT'S GREAT ANNUAL—A WEALTH OF INFORMATION—LABOUR STATISTICS AND THE PHTHISIS PROBLEM—OUR MINERAL OUTPUT TO DATE OVER 900 MILLIONS.

THE report of the Government Mining Engineer of the Union of South Africa for the year 1919 has made its appearance, and, as usual, this annual, edited by Sir Robert Kotze and Mr. Warington Smythe, contains such a wealth of detail and information of the most valuable kind that one feels bewildered at its comprehensiveness and very diffident about omitting a reference to any one of its multitudinous features.

In our last issue we endeavoured to give in a graphic form of our own composition the salient features relating to the Union's mineral output, the dividends earned and the expenditure on stores, wages and taxation, etc., in 1919 and 1915 (the first whole year of the War), and we here propose to give a few extracts from this remarkably valuable Blue book.

First then as to Labour and Salaries.

The total number of persons in service of mines and quarries (including metallurgical and reduction works and power companies) for the month of September, 1918 and 1919, is as follows:—

	1918.	1919.
Whites...	32,051	38,851
Asiatics	3,382	3,239
Natives and other coloured persons	217,812	255,075
Totals	253,235	297,165

Where Our Miners Come From.

It is of particular interest to note the nationality of miners. The classification of white mine employees, according to country of birth, based on the actual number in service on December 31, 1919, shows that 15,606 South Africans were employed on the mines; of those 12,676 were in the Transvaal, 1,949 in the Cape, 720 in the Free State, and 261 in Natal.

Twelve thousand eight hundred and sixty-seven white mine workers were born in the United Kingdom; 724 were born in other British possessions, and 1,107 in other countries. The South Africans form 51 per cent. of the whole.

These figures do not include alluvial gold and diamond diggers, regarding whose nationality reliable information is not available; it is, however, well known that the large majority of these are South Africans.

It is satisfactory to note that the Transvaal death-rate of 2.32 for the year 1919 is the lowest on record for that Province.

Miners' Phthisis: The Big Problem.

The prevention of miners' phthisis still remains the most important of the duties requiring the attention of inspectors of mines on the Witwatersrand. Although the report of the Miners' Phthisis Board and Medical Bureau shows that in recent years there has been a great decrease in the number of awards and of new cases of miners' phthisis, it is still difficult to make any absolute definite statement as to the success or otherwise of the preventive measures adopted, although opinions may be advanced. The only effective test that can be applied is to ascertain whether miners who have started work with a clean bill of health contract or do not contract the disease. The initial examination of the Medical Bureau now makes it reasonably certain that only persons with a clean bill of health are permitted to commence underground work, but the Bureau was only established in 1916, and the intervening period has been too short to enable conclusions to be drawn from the effect of underground conditions on the health of those persons who have commenced mining since that year. The Medical Bureau reports that none of the miners have yet contracted phthisis who have been admitted to underground work since the institution of the initial examination in 1916. It is obvious, however, that the non-contraction of phthisis by new miners in the short period of three and a half years that has elapsed since the establishment of the Medical Bureau, is no guarantee or proof that the underground conditions now make it impossible to contract the disease. The average period of nine and a half years of the miners who are included in the "production rate" carries them back to a date prior to the general adoption of the present drastic preventive measures which commenced in the year 1913, and it is to be presumed that conditions during these earlier years of their employment contributed largely to their present phthisical condition.

The report of the Medical Bureau for the year 1917-1918 showed that 153 men contracted phthisis in that year, and that their average period of work was nine years and five months. These 153 men constituted 5·6 per cent. of the total number of miners at work who had also worked for an equal average period. Out of 2,747 miners who have worked for an average period of nine years and five months, 153 miners had contracted phthisis, or one in 18. For the year 1918-1919, the number of miners who contracted miners' phthisis in the primary or secondary stage was 349, or more than double the number of the previous year. The average period of work is slightly longer than in the year before, namely, nine years and six months. One miner out of nine who had worked for this period contracted phthisis during the year. The comparison between the two yearly periods given is not by any means reassuring. It may be that the increase in the production rate for the later period is due to other causes than unsatisfactory underground conditions, and the report of the Medical Bureau indicates that there are good reasons for believing that such is the case; but a cautious and wideawake policy demands redoubled precautions. Energetic steps, such as are indicated below, should be taken against those underground conditions which are found to be the least satisfactory, and which can be looked upon as the most probable causes of the disease.

The Lure of the Diamond.

During the year the price of diamonds has continually risen, until it is a question whether the prices locally have not gone too far. As regards the diamond mines, which produce the bulk of the output, steps were taken by the chief producers, including the Government of the Union, as representing the South-West Protectorate, to meet and discuss the question of limiting production in order not to overstock the market. The result has been satisfactory, and an agreement was come to. With regard to alluvial stones,

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Lecture Rooms,
Permanent Buildings,
P.O. Boxes **6301** and **537**
Telephone **4368.**

TUTORIAL RESULTS:

46 Survey Certificates to date, including three Honours Certificates.

Elsewhere One Survey Pass has been obtained to date.

Last two Managers' Examinations combined we secured 15 passes from 19 entries, a truly remarkable record.

We established a percentage record of passes, January, 1920, Managers' Examination.

We lead with Overseers Passes, 1918 and 1919, combined.

WRITE FOR PARTICULARS AND CLASS TIME TABLE.

the prices have soared to such an extent as to tempt people of all kinds to try their luck on the alluvial fields. The Government Mining Engineer fears the result has been the usual one of a few being lucky and the rest hardly making living expenses. Experience shows that diamond diggers as a business proposition is a low grade one, requiring capital to employ labour in sufficient quantity to enable a large area of ground to be turned over within a short time.

Base Metals and Minerals.

More attention is being given to base metals and minerals, but there is room for great activity. An inspector of mines was sent to England towards the end of 1919 to bring to the notice of those interested in minerals the favourable opportunities presenting themselves in the Union for the exploitation of iron ores, asbestos, corundum and mica specially, as well as of salt, lime, gypsum, soda, magnesite and graphite. The visit was opportune, and it is hoped will have useful results.

Our Output to Date.

The value of minerals in the Union produced from the earliest date of existing records to December 31, 1919, was £900,393,742. The following are the details: Gold (value at £4·24773 per fine oz.), £624,420,051; silver, £2,130,413; diamonds, £202,034,241; coal, £44,352,110; copper, £22,499,289; tin, £3,998,490; antimony, £33,279; arsenic, £2,422; bismuth, £300; iron ore, £2,810; lead, £114,955; manganese, £3,741; mercury, £5; nickel, £38; tungsten, £6,149; zinc, £26,964; asbestos, £536,497; corundum, £49,957; graphite, £17,205; iron pyrite, £29,317; kaolin, £84; magnesite, £25,023; mica, £4,871; mineral paints, £3,165; soda, £94,717; talc, £6,649.

STURROCK & CO.
GENERAL, MINING AND RAILWAY ENGINEERS AND CONTRACTORS
beg to announce that in future this business will be carried on under the title:—
STURROCK (SOUTH AFRICA) LTD.
to whom all communications should be sent.

OFFICES:—
Barsdorf's Buildings,
MARSHALL STREET,
JOHANNESBURG.
P.O. Box 2863. Telegrams: "Delta." 'Phones 2596.

ANNOUNCING THE OPENING OF
BARIMAR IN SOUTH AFRICA
Following the policy of putting Barimar Branch Factories around the world, the Directors have pleasure in announcing the opening of the third Barimar Factory out of England—
BARIMAR (SOUTH AFRICA) LTD.,
Head Office—BARSDORF'S BUILDINGS, JOHANNESBURG.
Barimar (South Africa), Ltd., is completely equipped with the latest appliances for welding all metals, and with the most efficient machinery for completing repairs.
Highly skilled welders, trained in Barimar London Factories, control the technical side of Scientific Welding in the South African Factory, and these men will be able to produce the same grade of work that has made Barimar Scientific Welding famous throughout the Motor and Engineering Trades.
To SEND REPAIRS TO BARIMAR. We must see the parts before we can estimate or advise upon repair. Send them to us. First remove all fittings, then attach a label bearing your name and address. Please pay carriage. Post a letter to us advising despatch and give full instructions.
BARIMAR (S.A.) LTD.,
Ferreira Industrial Sites,
SAUER STREET SOUTH, JOHANNESBURG.
Telegrams "Barimar." 'Phone 2596. Box 2863.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK (S.A.) LTD.,
BARSDORF'S BLDGS.,
Telegrams: "BRITFLOT." Phones 2596-7.

The Consolidation of Our Company Laws.

FLOOD OF BLOEMFONTEIN REGISTRATIONS—THE REASON—NEED FOR UNIFORMITY

THE flood of new companies registered recently in Bloemfontein under the laws of the Orange Free State, states the Secretary for Mines and Industries in his annual report, must have attracted considerable attention. The law of the Province in question in respect of such registration is simplicity itself. Any seven or more persons associated for any lawful purpose may, by subscribing their names to a memorandum of association, and otherwise complying with the law, form an incorporated company with limited liability. Practically all that is necessary in the articles of association is the name of the proposed company, the amount of capital divided into shares of fixed amount, and the locality of the registered office. For the rest, the chief requirements appear to be the payment of the fees and the putting up of a conspicuous plate at its place of business.

From the above it will be seen that, apart from the requirement that the purpose of the company shall be apparently lawful, and that certain formal details shall be complied with, there is no restriction on any company being registered and thus obtaining the privilege of limited liability, whatever suspicions may be entertained as to the good faith of its promoters or the feasibility of its operations proving payable. It is not suggested for a moment that any company, wherever its proposed field of operations, is not perfectly entitled to take advantage of the ease and simplicity of registering under the Free State laws, especially if time can also be saved by so doing. Many excellent companies have done so. What may, however, be objected to is that such a law can so easily be taken advanage of by companies the *bona fides* of which are not beyond suspicion.

The above is only one of the reasons for calling for the promulgation of a consolidated company law for the whole Union, the urgency of which is otherwise generally recognised. When such a law comes under consideration it is earnestly to be hoped that the privilege of limited liability will be more jealously guarded, and that effective measures will be devised for dealing with the class of company of which in the past so many cases have proved of bogus character, and some of which even now are not beyond suspicion. Stock Exchange restrictions, though useful in this direction, will never be entirely effective, and it will be necessary to look to the law itself for salvation. In my humble opinion, nothing less drastic will suffice than that the Minister of Justice should reserve full right, either by himself or through the Attorney-General or Registrar of Deeds of the Province concerned to institute an inquiry into the circumstances and purposes of the company, and, if not satisfied, to refuse the privilege of registration. For such an inquiry the Minister would have at his disposal the advice of the Government's whole technical staff.

There should be nothing obnoxious in the above provision from the company's point of view, as the most that could happen, in any ordinary case, would be that the directors might be called upon to substantiate, to reasonable satisfaction, any satement made in the published prospectus of the concern.

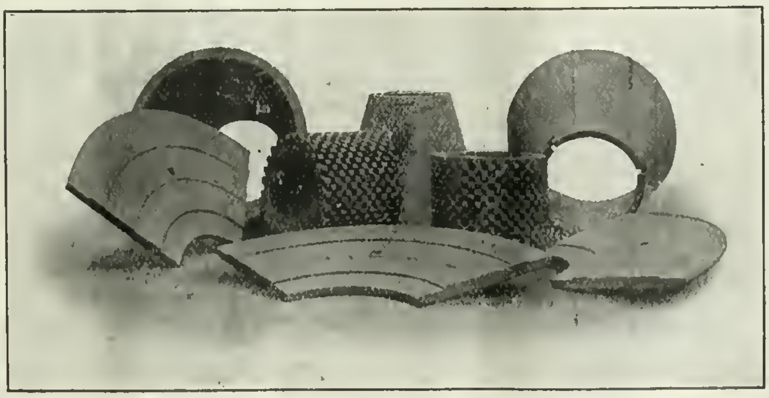
There is now also rather urgent call for a consolidated diamond law for the Union. The Cape legislators have rather prided themselves on their mining legislation, and justly so, especially as regards diamonds, the leading Ordinances regarding which not only served the purposes of that Province sufficiently well for many years, but also afforded the foundation for similar legislation for the other Provinces. Conditions have changed greatly since, however, and new requirements have had to be given effect to, with the result that the 1899 Act has become much mutilated, and the diamond laws as a whole very cumbersome to work with. The Free State legislation, being more recent, suffers less in these respects, but would also benefit now by consolidation and amendment.

Of course, the main object to be gained by a consolidation of the various statutes would be the removal of the rather striking anomalies that exist between the laws of the various Provinces, especially as regards the rights of owners and discoverers.

It is understood that there are one or two rather serions difficulties to be overcome in effecting a change, but these may as well be faced now, as obviously the limit of "tinkering" with the present laws has nearly been reached.

Majunga Oilfields of Madagascar.

We have received the following communication from the Majunga Oilfields of Madagascar: "The directors have instructed me to draw your attention to the recent acquisition by the Royal Dutch Shell Company of the properties of the Sakalava Proprietary Oilfields, Ltd., in Madagascar, the concessions of which are adjacent to those owned by this company. This acquisition of adjacent properties by a so important and well-known petroleum group undoubtedly demonstrates the value of the concessions owned by this company covering an area of 78 square miles, and should considerably enhance the value of our interests."



Phone 4673. Box 3162.

OSBORN'S

"TITAN" Manganese Castings,

For

Rotary and Jaw Crushers and Mortar Box Liners, etc., and for all parts subjected to severe abrasion.

Samuel Osborn (South Africa), Ltd.,

Sheffield & Johannesburg.

The Industrial Future of the S.-W. Protectorate.

In his prefatory remarks to the report on the conditions of prospects of trade in the Protectorate of South-West Africa, dated December, 1919, just issued by the Board of Trade, Mr. J. L. Wilson Goode, H.M. Trade Commissioner at Capetown, explains that, in view of the changed conditions of the country, it is practically impossible to submit comparisons of any real value between the present trade and that of the pre-War. For the same reason it is difficult to arrive at satisfactory conclusions regarding the future of the country.

A Cattle-raising Country.

Although the South-West African diamond industry is of considerable importance, it is mainly upon cattle raising that the future of the country depends. The extent of the growth of this industry will be determined by a definite official pronouncement concerning the policy of the Government towards the future development of the country, the provision of increased facilities for obtaining water, the ability of the country to attract settlers with ranching experience and with a fair amount of capital, and by the development of both internal and external means of communication.

As regards the question of settlement, it must be borne in mind that, as the prospects of agricultural development are by no means favourable, and the stock farms are necessarily extensive, there does not appear to be any immediate opening for settlers with small capital. There is, moreover, considerable difficulty in obtaining sufficient labour, either for farms, railways or mines, and this is a serious restraint to development in every direction, but it is expected that the position in this respect will gradually improve as the natives become more accustomed to the changed conditions.

Industry and Production.

In December, 1919, there were approximately 400,000 head of large stock and 1,000,000 head of small stock in the Protectorate, and it was estimated that, when fully stocked, the total carrying capacity of the country would be roughly 3,000,000 large stock, and from 10,000,000 to 12,000,000 small stock. Before the country is capable of carrying this enormous increase in stock water boring will have to be carried out very extensively, which, with its concomitant necessaries, will develop into industries of considerable magnitude. Moreover, cold store accommodation will have to be provided at the chief export centres.

According to the latest approximate returns, there were about 1,450 occupied farms in the Protectorate, of which about 1,300 were occupied by Germans and the remainder by Dutch-speaking people. It is thought that eventually the number of farms will reach 7,000, and if this should prove to be the case, the necessary building materials for homesteads, etc., will be considerable.

The Diamond Position.

Although the operations of the diamond mining companies were suspended during the South-West Africa campaign, their activities were resumed after the occupation of the Protectorate, and they are still producing. In 1918 the diamond industry was represented by nine companies, whose united output during the year was 372,138,700 metric carats. All the chief titles and interests of the territory, representing 90 per cent. of the diamond output of the territory, have been acquired by the Consolidated Diamond Mines of South-West Africa, Ltd., the shares of which are now dealt in on the London Stock Exchange.

The opinion was expressed by the Administrator of the Protectorate that, provided the demand for diamonds continues and the prices remained at a satisfactory level, the finances of the Protectorate should cause no anxiety, as the tax on diamonds would provide the greater portion of the revenue required annually for administrative purposes, but this would be conditional on the country being dealt with lightly in the matter of Public Debt charge. If, however, any arrangement were adopted whereby South-West Africa had to bear the interest and sinking fund charges on the loan (or even a portion of it), from which the expenses of the 1914-15 campaign and of administration since have been met, it might seriously handicap, if not altogether destroy, development.

Owing to the small white population, the trade of the country consists very largely of native supplies. The soft goods trade may be divided into two classes, namely, (a) cheap goods for the native trade, such as blankets, shawls, prints, jackets, trousers, shirts, boots and shoes, knives, beads, etc.; (b) high-class goods for the white population, such as linen and calicoes, dress material, all kinds of clothing, underwear, boots and shoes, hosiery, leather and fancy goods, cutlery, etc.

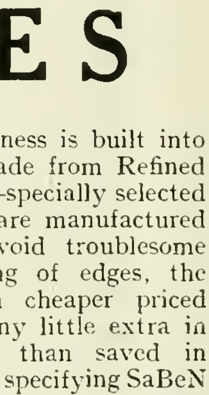
SaBeN
SHOES
AND
DIES

Hardness and toughness is built into them. They are made from Refined Crucible Cast Steel—specially selected qualities—and they are manufactured on lines such as avoid troublesome crackings and curling of edges, the great difficulty with cheaper priced Shoes and Dies. Any little extra in first costs is more than saved in ultimate costs and, in specifying SaBeN you are specifying quality and lasting satisfaction.

Sole Agents for South Africa:
BARTLE & CO., LTD.
P.O. Box 2466. Phone 3553. Wires: "Faggot."
LOVEDAY HOUSE — JOHANNESBURG.

There's no doubting their quality—They are made by
Sanderson, Bros., & Newbould, Ltd.,
—of Sheffield—

M.J.3



Why the Dry Jackhammer is Doomed!

AN IMPORTANT REPORT ON THE RESULTS OBTAINED FROM INVESTIGATIONS MADE WITH THE KONIMETER TO ASCERTAIN THE AMOUNT OF DUST PRODUCED IN DRILLING HOLES BY MEANS OF DRY JACK HAMMER MACHINES.

By H. E. Barrett.

In this paper by "dry jack hammer" is meant a hammer type machine with air only passing through the hollow steel to the bottom of the hole being drilled, the water to allay dust being led into the mouth of the hole by means of a separate hose pipe, as required by the regulations. In referring to results as satisfactory or unsatisfactory I have adopted the standard suggested by the Miners' Phthisis Prevention Committee; namely, that dust in excess of 300 particles per cc. should be considered unsatisfactory. Doubt as to whether the dry jackhammers produced an injurious amount of dust first arose in connection with sinking shafts. In order to ascertain the actual conditions at the bottom of shafts being sunk along the reef by means of such machines, Mr. Atkin, of the Mines Department, took a series of samples in nine shafts. The average result was 1,082 particles per cc., the lowest being 450 particles per cc. and the highest 1,800. The samples were taken about level with the drillers' mouths. Even in cases where the holes were being drilled under water unsatisfactory results were obtained. It was then deemed advisable that Inspectors of Mines should take a series of samples in stopes on different mines under ordinary working conditions, and I was deputed to do that work in the Johannesburg and Germiston Districts.

I visited seven mines with the following results, each sample determination being the average of counts of three spots.

(*a*) Machines using solid starters and entirely hollow star bits, *i.e.*, drills with central hole extending to the cutting edges.

Samples taken 2 ft. from holes on leeward side—average for 65 samples = 724 particles per cc.

Samples taken at drillers' mouths—average for 74 samples = 667 particles per cc.

(*b*) Machines using solid starters and chisel bits with air outlet placed from 1 in. to 3 in. above cutting edge and at right angles to drill.

Samples taken 2 ft. from holes on leeward side—average for 11 samples = 544 particles per cc.

Samples taken at drillers' mouths—average for 15 samples = 428 particles per cc.

(*c*) Machines using solid starters and chisel bits with air outlet placed from 1 in. to 3 in. above cutting edge and pointing towards cutting edge.

Samples taken 2 ft. from holes on leeward side—average for 27 samples = 391 particles per cc.

Samples taken at drillers' mouths—average for 23 samples = 275 particles per cc.

The above samples were taken at holes varying in depth from being collared to 48 in., and at the time notes were made of the conditions prevailing in the stopes and under which the holes were drilled. The dust was invariably found to be exceedingly fine, there being rarely if ever above 5 per cent. of particles above 5 microns in size. The variations in ventilation, number of machines at work, eddying of air currents due to the exhaust from the machines and other conditions made it impossible to deduce any general conclusions as to the conditions under which more or less dust was formed by the machines; except that it appeared probable that chisel bits made less dust than star bits, and that less was made with an air outlet directed towards the cutting edge than with one at right angles to its length.

To throw more light on this matter tests Nos. 1 and 2 were carried out under similar conditions in a stope. Two down holes were drilled with the same machine and water appliances, one with (*a*) bits and the other (*c*) bits. Three samples, each of three spots, were taken 2 ft. from the collars of the holes being drilled on the leeward side, at intervals of every 4 in. drilled.

The average results obtained were:—

with (*a*) bits 602 particles per cc.
with (*c*) bits 509 particles per cc.

It will be seen that the difference is not great, and that both results are unsatisfactory.

To investigate further the influence of differently shaped bits with differently placed air outlets on the dust produced, and at the same time, if possible, to obtain graphs showing how the dust varied with the depth of hole drilled, tests 6, 7 and 8 were carried out in a winze in which the air current was upward.

The same machine, natives and water appliances were used to drill one down hole 44 in. deep with each of the following kinds of bits:—

(*a*) Solid starter and entirely hollow star bits.

(*c*) Solid starter and chisel bits with air outlet 1¾ in. above cutting edge and pointing towards cutting edge.

(*d*) Solid starter and hollow star bits with air outlet 1¾ in. above cutting edge and pointing towards cutting edge.

In order to obtain the dust contents of the atmosphere passing the machine, samples were taken before drilling in each hole. Obviously, if it is wished to know how much dust is produced by a machine working in an air current, it is necessary to ascertain not only the number of particles of dust per cubic centimeter of air in the actual sample taken, but also the number of cubic centimetres of air which were polluted to that extent by the machine. In other words, it is necessary to take into account the quantity of air passing the machine. With the idea of correcting the results for variation in the air current, anemometer readings were taken simultaneously with the dust samples, in an opening in a wooden doorway fixed near the top of the winze and 25 ft. above the holes being drilled. The dust samples were taken 18 ft. above the machines so as to avoid interference from the exhaust and compressed air leakage, and on the completion of each 4 in. drilled. Unfortunately it was found that the variations in velocity of the air current and in the amount of dust in the atmosphere before it reached the machine, were so frequent and great that it was impracticable to secure accurately comparable results.

The average results actually obtained for each hole were as follows:—

(*a*) Air passing machine—2,964 cub. ft. per min.

Average dust in air passing machine—200 particles per cc.

Average dust in air 18 ft. above machine—427 particles per cc.

(*c*) Air passing machine—3,570 cub. ft. per min.

Average dust in air passing machine—156 particles per cc.

Average dust in air 18 ft. above machine—352 particles per cc.

(*d*) Air passing machine—3,200 cub. ft. per min.

Average dust in air passing machine—170 particles per cc.

Average dust in air 18 ft. above machine—270 particles per cc.

With the same objects in view, but in order to maintain constant conditions, tests Nos. 10, 11 and 14 were carried out as follows:—

Two wooden ventilating doors made as air-tight as possible, but which still allowed a very slight drift of air, were fixed across a cross-cut in close proximity to a down-cast shaft, so as to form a chamber 53½ ft. long by 9 ft. wide by 7½ ft. high with capacity of 3,611 cub. ft. In order to avoid the samples being contaminated by carbon particles from carbide lamps (which sometimes is the case in confined spaces, making accurate counts difficult) the chamber was lit by electricity. The holes were drilled by an Ingersoll dry jackhammer machine, which was rigged up at approximately the centre of the chamber. Before drilling commenced the chamber was well wetted down, both doors were closed and three samples were taken of the atmosphere in the chamber at intervals of 13 ft. along its length, so as to obtain the initial dust contents. Drilling was then commenced with a starter, the air pressure at the machine, time taken to drill and depth drilled being carefully noted. As soon as drilling ceased, six samples were taken at the same intervals of 13 ft., the first three while travelling from the intake side of the chamber and the other three returning, after which both doors were opened and the dust laden atmosphere blown out by the natural ventilating current. This process was repeated for each bit used. Water was continuously applied to the mouths of the holes drilled, in a gentle stream by means of a ½ in. hose pipe running full bore, one of the two natives with the machines applying it under my supervision. The results obtained are attached in tabular form, and the corresponding graphs appear on the chart. An attempt to make similar tests with chisel bits failed, as they broke up on account of the hardness of the rock. Tests 10, 11 and 14 confirm the high results obtained from samples taken in stopes under ordinary working conditions, and also show that after a comparatively shallow depth has been reached, the dust produced increases very rapidly. During use of the fourth jumper in each test, the air in the chamber became visibly hazy especially on the leeward side of the machine, and in test No. 10 in particular a cloud of dust was noticed to issue continuously from the hole in spite of water being carefully applied. It appears from the tests that while differently shaped bits having differently placed air outlets influence the dust produced to a certain extent, the difference is not sufficient to make the drill with any bit satisfactory from a health point of view. Though in the absence of sufficient information with regard to the wet jackhammer, in which water as well as air is passed through the hollow steel, I have limited my paper to the results given by the dry machine, it may be of some interest if I give for comparison those results for the wet machine which I have available. I must, however, point out that they are perhaps unduly favourable to the wet machine under average conditions, as they were made under high water pressure, and with single cocks governing both air and water supplies. The machines were equipped with short internal water tubes.

Samples taken in stopes under ordinary working conditions with entirely hollow star bits, including the starter, gave the following results:—

2 ft. from hole on leeward side—average of six samples = 152 particles per cc.

At drillers' mouth—average of 18 samples = 107 particles per cc.

Tests 12 and 13, of which the results are attached, and of which the graphs are included in the chart, were carried out in the chamber under similar conditions to tests 10, 11 and 14. Actually the same machine was used with fittings converting it to a waterfed machine. The water supply, from a surface dam, was clear, and while drilling a medium fog was produced in the chamber, and a coarse spray of water issued from the machine chuck. Tests 6 to 14 were made in the Ferreira Deep Gold Mine, and I have to acknowledge the facilities and assistance given by the management and officials of that mine.

[Unfortunately it is not possible to reproduce the tabled results.]

Excerpt from paper read before the C.M. and M. Society.

Mica in Rhodesia.

The news from the mica properties in Southern Rhodesia is very encouraging. Latest advices received by the London and Rhodesian Mining and Land Company report that the Miami and M'Boho mica properties are opening up exceedingly well; large deposits have been exposed, and regular shipments will now be made. A further two tons have arrived in England, and other shipments are advised. Sales on account of the last shipment have averaged 10s. 4d. per pound.

* * * *

H.E. Proprietary.

A substantially increased profit is reported by the H.E. Proprietary (New), Ltd., for 1919, namely, £12,450, against £7,770 for 1918. Once again, however, the directors recommend that the year's surplus should be added to the general reserve account, which will thus be raised to £30,452. Since the close of the period covered by the accounts it is observed that a further marked improvement in results has been shown. The claims and interests in various mining properties and the investments are entered in the balance sheet at the somewhat increased amounts of, respectively, £116,634 and £185,972. The debtors, etc., stand at £62,855 and cash at £5,975, against which there are creditors to the tune of £42,321. It is stated that the company's subsidiaries have continued to follow a conservative policy as regards restricting dividends and strengthening reserves. The Piccadilly Hotel, Ltd., of which the H.E. Proprietary holds about three-eighths of the issued share capital, continues to do "excellent business." St. James Court, Ltd., of which the entire share capital is owned by the H.E. Company, has made further progress, and as the old leases of the service flats fall in greatly improved rentals are being obtained. The Channel Steel Co., Ltd., and the New Lisbon Berlyn, Ltd., continue to mark time. The acquisition of adjoining properties by the Palmarejo and Mexican Gold Fields, Ltd., is foreshadowed. On the basis of Mr. G. A. Denny's recent report the directors of the H.E. Company are confirmed in their belief that the northern portion of the farm Klippoortje, on the South-Eastern Rand, is an asset of great prospective value.

Rouxville Diamonds, Ltd.

(Registered in the Orange Free State Province.)

Notice to Shareholders.

NOTICE IS HEREBY GIVEN that the FIRST ORDINARY GENERAL MEETING OF SHAREHOLDERS in the above company will be held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on FRIDAY, 22nd OCTOBER, 1920, at 10.30 o'clock in the forenoon, for the following purposes, viz. :—

1. To receive the Reports of the Directors and Auditors, and to consider the Balance Sheet as at 31st August, 1920, and Profit and Loss Account for the period ended 31st August, 1920.
2. To elect Directors in the places of Messrs. D. Christopherson, C.B.E., C. Hely-Hutchinson, W. S. Smits, E. Brayshaw, L. Lewe, and Lt.-Col. F. Leslie Brown, D.S.O., who retire in accordance with the provisions of the Articles of Association, but are eligible and offer themselves for re-election.
3. To appoint Auditors for the ensuing year, and to fix the remuneration for the past audit.
4. To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 16th to 22nd October, 1920, both days inclusive.

By Order of the Board.

NEW CONSOLIDATED GOLD FIELDS, LIMITED,
Secretaries.
Per A. C. GRANT.

Head Office :
Consolidated Gold Fields Buildings,
Simmonds Street, Johannesburg.
21st August, 1920.

General Mining and Finance Affairs.

REVIEW OF THE YEAR ON THE MINES UNDER THE ALBU CONTROL—THE POSITION OF THE LOW GRADE PRODUCERS—TRANSVAAL SILVERS—SOME INTERESTING FACTS.

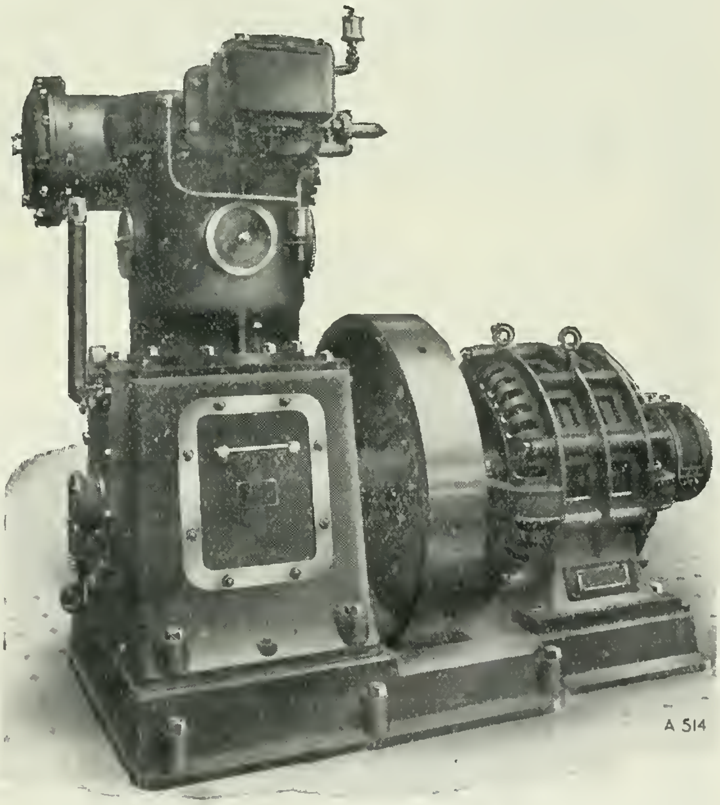
The report of the General Mining and Finance Corporation for the year 1919 states that after providing for administration expenses, interest, and directors' fees, the accounts show a profit for the year of £25,685, from which the loss on mining ventures, amounting to £20,569, has been deducted, leaving a balance of £5,116 as net profit. This has been carried to the balance sheet, and after adding the unappropriated profit brought forward from the previous year makes a total credit to appropriation account of £79,788. The corporation's holding of shares and debentures of other companies shows a depreciation (in the aggregate) of £1,066,100, if taken at the market prices obtaining at December 31 last, as compared with a depreciation of £1,106,196 at the close of the previous year. The directors again point out that this depreciation does not represent a realised loss, but that any material improvement is largely contingent on the re-financing of certain of the companies under the corporation's control in which it holds large interests, and which require additional working capital for the re-commencement and continued prosecution of mining operations. The major portion of the share and debenture investments are in the nine mines under the management and control of the corporation. These are:—Outcrop mines (producing): Aurora West United, Meyer and Charlton, New Goch, Roodepoort United, Van Ryn, and West Rand Consolidated Mines. Deep level mines (partially developed or waiting development): Cinderella Consolidated, New Steyn Estate Gold Mines, and Rand Collieries.

A short resumé of the operations for the past year of each of these companies appears in the report, which further states that the Transvaal Silver and Base Metals, Ltd., was formed towards the close of the past year with a nominal capital of £70,000, with the object of acquiring from the corporation certain properties, comprising the two mines of the late Transvaal Silver Mines, Ltd., on the farm Dwarsfontein No. 145, the properties developed by the late Witpoortje Syndicate, Ltd., on the farms Boschpoort No. 336 and Brakfontein No. 219, and the workings of the late White Swan Copper (Argentiferous) Co., Ltd., on the farm Oudezwanskraal No. 537,, together with prospecting contracts with options to lease or acquire the mineral rights over areas totalling about 50 square miles, on practically all of which lode outcrops occur and lead-bearing ore has been found. Considerable work was carried out on the mines referred to from 1889 to 1895, but they were closed down about the latter date owing to the severe fall in the price of metals and the difficulties and excessive cost of transport at that time. The position in both these respects has entirely altered in recent years, and also in regard to greatly improved processes of treatment of ore, thus rendering the proposition a very attractive one. The initial working capital of the new company of £35,000 was offered to the public of the Union of South Africa under the guarantee of the corporation: the offier was most favourably received, the issue being subscribed for very many times over. Active operations have been commenced on the farm Dwarsfontein, with very encouraging results.

Shares are also held by the corporation in other mining, estate, financial and miscellaneous companies. The book value of these at December 31 last was £265,878. During the year certain house properties were disposed of, and 541 mining claims on the Western Rand abandoned. The book value of these claims has been written off and is included in the loss on mining ventures appearing in the profit and loss account, while the loss on realisation of the house property has been deducted from the special reserve account of £70,000 provided for such contingencies, reducing the reserve against the remaining real estate and house properties to £55,125

In a general concluding statement the directors state, regarding the mining operations of the gold producing companies, that working expenditure increased during the year, mainly by reason of the further advances in the cost of stores and white labour, and the position would have been still more serious but for the timely arrangement with the British Treasury, by which, as from July 25, 1919, the gold mining companies, for the first time since the outbreak of war, were enabled to sell their gold in the open market. Since the close of the year under review working costs have still further increased, chiefly in the direction of white and native wages, with the consequence that in the instance of the New Goch, Aurora West, and Roodepoort United, producing mines, a complete revision of the policy of working which involved retrenchment of a proportion of the white employees had to be undertaken as the only alternative to a total suspension of operations on the properties mentioned, and, in the case of the Roodepoort United, the introduction of the retrenchment scheme can only delay the eventual closing down of the mine for a few months longer, even if the gold premium is maintained at its present level. It will be seen from the remarks regarding the Transvaal Silver and Base Metals, Ltd., that the directors are not confining their activities to the gold mining industry alone, and that they hope to extend the sphere of the corporation's interests in other and possibly more profitable directions.

Since the close of the year under review Mr. A. French (for many years manager of the corporation in Johannesburg) has been appointed by the directors to a seat on the board.



"SENTINEL" AIR COMPRESSORS

Large Stocks carried in South Africa, ready for immediate delivery,
Steam Driven or Belt Drives.

SOLE AGENTS:
THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

USE

"PORPOISE"

BRAND

ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by

South African Lubricants & Chemical Works, Ltd.,

DURBAN & JOHANNESBURG.

Phone 1618, Johannesburg Branch Office.

OUR SPECIALITY!

(NOT TO BE BEATEN).

MAGNETOS

! F. HOPPERT. !

MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:

Box 3503. Tel. Address: "MAGNETOS." 'Phone 3130.

BY-PRODUCT COKE OVENS AND PLANT

THE SEMET-SOLVAY OVENS

BUILT BY

The Coke Oven Construction Co., Ltd., Sheffield

WILL GIVE THE BEST RESULTS AT THE LOWEST WORKING COST.

Several thousand Ovens have been built throughout Great Britain, France, Belgium and America, etc., amongst which will be found the following Firms:

BRUNNER, MOND & CO., LTD.
W. BAIRD & CO., LTD., 210 Ovens.
WIGAN COAL & IRON CO., 132 Ovens.
STRAKERS & LOVE, 120 Ovens.
BRYMBO STEEL CO., LTD.
UNITED ALKALI CO., LTD.
BOLCKOW, VAUGHAN & CO., 290 Ovens.
JOHN LYSAGHT LTD., 96 Ovens.
THE BROKEN HILL PROPRIETARY CO., LTD., 156 Ovens. And repeat order for a further 66 this year (1920).

Agents for South Africa, from whom all particulars can be obtained:—

HANNAM, BONSALL & CO.,

7, MAXWELL BUILDINGS, HARRISON STREET, JOHANNESBURG.

P.O. BOX 4236. 'PHONE 4907.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

COAL, PETROLEUM AND WATER IN THE KROONSTAD DISTRICT.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—As we are on the verge of great industrial developments in South Africa, I feel it will be of public interest to state my experiences—which cost me a pretty large sum of money—in connection with three important staple commodities, viz., coal, petroleum and water irrigation, as, since 1895, I have found them to be obtainable in the vicinity of Kroonstad, O.F.S.

With regard to coal, no fewer than nine seams of varied thickness have been discovered by me in drilling in the area just mentioned. But in those days there was no demand for coal beyond that which the Transvaal and Natal could supply. Moreover, the depths at which these seams were found were then regarded as too great to justify working. But increased prices of the commodity and improved methods of mining have obviated this difficulty. The coal indications were in three boreholes. It is clear that these coal beds are the nearest to the harbours of East London, Port Elizabeth and Capetown, and would constitute an export trade, as well as an asset for domestic and industrial purposes in the O.F.S.

In the matter of petroleum, as early as 1885 Mr. Stow, in his work on geological formation of the O.F.S., took pains in describing the area within which petroleum would be found, and at what depth. Following his opinion I tested the Town Commonage of Kroonstad in three different places by means of boreholes, which I sunk to a depth of from 1,000 to 1,460 feet.

The Geological Society of Johannesburg heard of my tests, and three of their representatives examined the core formations taken out and declared that I was evidently on the naphthaline series and in the vicinity of petroleum. They urged me to bore further, for they felt sure of the signs as to the presence of petroleum. Indeed, the indications in the core were such as to enable a layman to come to the same conclusion. I may say that these experts came to me entirely of their society's accord, and were therefore purely independent judges. Their report encouraged me to go on with the testing, with increasingly satisfactory results, until the drill broke at a depth of 1,000 feet in the borehole which I had sunk. I started operations at two other places some miles off, but the depths at which petroleum would be found, according to Stow and the three experts, had not been reached when our work came to a standstill. To bear out what has already been stated I may add that the surface formation is all in favour of its being over petroleum deposits. I will here quote from a letter I addressed to the Under-Secretary of Mines at Pretoria in 1913: "Well-defined dykes run parallel through this vicinity, from north-east to south-east. No boring or prospecting has been done in the neighbourhood, but strong indications are to be found a few feet below the surface. In the first place, the contraction of the earth's crust has formed exceptional 'anti-clinals' in the shape of upheavals rising from 100 ft. upwards from the surrounding country. A different grass grows on these raised parts. It is my firm opinion that these upheavals have been caused by the explosion of gas and, no doubt, a very large quantity of oil accumulated at these very spots and formed gas which found its way through the thinnest part of the earth's crust. To substantiate this, some little distance from some of these upheavals there are large, round sandstones, doubtless thrown up by the explosion at time of these upheavals. After years of exposure there is on these stones an oxidised crust—a thing unusual in the general run of sandstones—as though they had been submerged in petroleum. Parallel to the dykes is a belt of shale, well exposed a little further to the westward and cutting it through, showing relationship to existence of petroleum. It is interlaced with schists of metallic slate, etc."

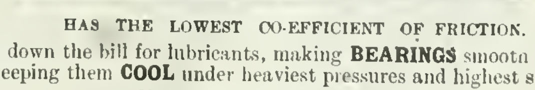
To this letter I received the following reply: "Your letter unfortunately did not reach me in time to allow of Mr. Cunningham Craig visiting your locality when passing through Kroonstad and there will not now be any opportunity for him to do so." I am prepared to point out the surface indications and to have the results of my testings verified by any interested party who may desire to do so, and I feel convinced that it will lead to a development of this district, and possibly of others, to an undreamed of extent. But besides these vast possibilities in the production of coal and petroleum, there are in this district natural conditions for practically unlimited irrigation. In 1896/7 I was approached by one of the leading financial firms in Johannesburg as to a scheme for growing beetroot for sugar under irrigation. Two German engineers and a Doctor of Science, all experts in the matter, came down to see a certain site which I had selected for them. Despite the fact that prior to this five other properties had been shown to them, they decided to acquire the site which I pointed out, so satisfied were they with it. The catchment on this particular site would be immense, as the water can be thrown back for a distance of about nine miles, according to height of weir. This can be built on a rock foundation up to a hundred feet. One very important advantage of this site which impressed the engineers was the absence of those conditions which make siltage. The value of this impossibility for siltage to gather in the dam is being greatly appreciated by engineers and others interested in the conservation of water. I therefore draw especial attention to this feature of non-siltage in the site I am speaking of. The beetroot sugar scheme never matured, because there were three farms that had not been purchased, for which the farmers, having heard of the scheme, asked such exorbitant prices. More recent developments, however, have shown that, under irrigation, these farms would speedily have repaid the excessive cost of purchase.

I take pleasure in putting these facts before your readers in the hope that something may be done to tap the inexhaustible wealth of this and many another part of our Province. Thanking you, sir, for your courtesy in inserting above letter.—I am, etc.,

David H. Pritchard.

MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

TRADE MARK



HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making **BEARINGS** smooth as glass and keeping them **COOL** under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd., Johannesburg Bulawayo and Salisbury.

Application Forms and Prospectuses may be obtained at the Local Branch of the National Bank of South Africa, Limited.

APPLICATIONS must be received at the Company's Office not later than September 10, 1920.

ABRIDGED PROSPECTUS

OF THE

Pretoria Silver & Lead Company,

LIMITED

(TO BE INCORPORATED IN THE ORANGE FREE STATE).

THE WHOLE OF THE SHARE CAPITAL FOR SUBSCRIPTION HAS BEEN GUARANTEED.

NOMINAL CAPITAL - - £80,000

Divided into 80,000 Shares of £1 each and allocated as follows:—

To Vendor in fully paid shares - - -	**£15,000**
To Promoter in fully paid shares - - -	**£10,000**
Shares offered for subscription - - -	**£55,000**

The 55,000 Shares are now offered for subscription at par, payable 5s. on application and 15s. on allotment.

DIRECTORS:

LIEUT.-COLONEL C. L. ANDERSSON, Chairman, S.A. Land and Exploration Company, Limited, Meischke's Buildings, Johannesburg.
BERNARD ALEXANDER, Solicitor, Sacke's Buildings, Johannesburg.
JAS. H. KELLEY, Chairman of Vryheid Coke Company, Ltd., Vryheid, Natal.
CHAS. A. O. BAIN, Mining Agent, Bain's Building, Johannesburg.
ADAM Y. NIVEN, Chairman, Witwatersrand Commercial Exchange, General Mining Buildings, Johannesburg.
H. J. HOFMEYR, Solicitor, Standard Bank Chambers, Johannesburg.
A. J. SHIMWELL, of Messrs. Shimwell Bros., Shimwell's Buildings, Johannesburg.

CONSULTING ENGINEER:

OLIVER KING, M.A.I.M.E., Cullinan Building, Simmonds Street, Johannesburg.

BANKERS:

NATIONAL BANK OF SOUTH AFRICA, LIMITED,
NATAL BANK BRANCH, MARKET STREET, JOHANNESBURG.
H. J. HOFMEYR, Standard Bank Chambers, Johannesburg.

SECRETARIES AND HEAD OFFICE:

CHAS. A. O. BAIN & CO., Bain's Building, 66 Commissioner Street, Johannesburg.

AUDITOR:

GEO. MACKENZIE, Standard Bank Chambers, Johannesburg.

The Company is being established for the main purpose of acquiring from the Vender the Mineral Rights of portion of the Farm "DWARSFONTEIN," No. 145, District Pretoria, in extent 723 morgen.

The property has been examined by Mr. Oliver King, M.A.I.M.E., Consulting Engineer, upon whose technical recommendations the Transvaal Silver and Base Metals Company, Limited, was floated, the share issue being over-subscribed eleven times.

The Vendor is Mr. A. J. SHIMWELL, and the consideration payable to him against transfer of the Mineral Rights is 15,000 fully paid shares in the Company and £10,000 in cash.

The Promoter, Mr. JAS. H. KELLEY (with whom Mr. C. A. O. BAIN is jointly interested), receives 10,000 fully paid shares, and is paying the preliminary expenses connected with the flotation of the Company, which will be refunded by the Company on flotation.

The 55,000 shares offered for subscription have been guaranteed to be taken up at par, and in consideration therefor the guarantors receive an option for a period of twelve months from the date of the registration of the Company to take up an equal number of shares in the Company at 25s. per share.

The subscribers of the 55,000 shares shall also receive an option for a period of twelve months to take up at 25s. per share a number of shares equal to the number subscribed for.

The Promoter shall receive an option on 5,000 shares upon the same conditions.

The Directors of the Company will be empowered to increase the share capital of the Company in order to provide for the above options.

CONSULTING ENGINEER'S REPORT.

Mr. King has most carefully examined the property, and his report, which contains detailed particulars of sampling, and is accompanied by plans and diagrams, may be inspected at any time.

The average metallic contents of a series of argentiferous Galena samples taken from the property were determined by Mr. Rex. H. Rundle, Metallurgical Chemist and Assayer, to be 31 per cent. of Lead and 39 ozs. of Silver per ton of 2,240 lbs.

Mr. King mentions that the Shimwell lode, which is the principal lode on the property, is mentioned in the earliest known report by W. H. Furlonge, who speaks of it as the most promising in the district, and says that at a depth of 55 feet he estimates the value of the lode as 40 per cent. Lead and 50 ozs. Silver over 30 inches.

He next gives assays of two samples of hand-picked ore, which are as follows:—

Lead, 77.3 p.c. Silver, 130.2 oz. Value £59 long ton.
Lead, 66.2 p.c. Silver, 80.9 oz. Value £43 long ton.

He gives the length of this lode as 5,100 feet.

Regarding the other lode, known as the Brakfontein lode, he gives the average width as 31 inches, and the assays he took gave: Lead, 10.33 p.c.; Silver, 13.05 ounces; and Zinc, 8 p.c.

In the Transvaal Silver Mines the lode is proved to a vertical depth of 330 feet, and Mr. King thinks there is no risk in assuming that the Shimwell lode goes to an equal depth, and that each level of the mine, calculated at only 3 feet wide, would give 150,000 tons per level. Although calculated only to a depth of 330 feet (the known depth), there is no geological reason why the lode should cease at that or any other depth.

Mr. King outlines a scheme of development and production in stages, and thinks that the mine, developed and equipped to put out 100 tons per day, would yield on present metal prices a product worth £724, and after deducting cost of smelting a working profit per working day at the mine of £324.

CAPITAL AND DIVIDEND PROSPECTS.

The Capital of the Company has been kept within modest limits, but the financial scheme will admit of bringing the property to a sound producing stage, and it is confidently anticipated that substantial dividends will be earned.

All the information available points to the likelihood of the prices of silver and lead being at least maintained for some considerable time to come; but in Mr. King's opinion, as already stated, the margin of payability is so wide that it would be possible to carry on profitable operations at less than half of the current quotations.

Dated at JOHANNESBURG the 26th day of August, 1920.

The Week in the Sharemarket.

A SILVER BOOM—GOLD STOCKS QUIET—DIAMONDS BETTER.

GOLD stocks have been quiet during the week, but Transvaal Silvers and most diamond shares have been active at higher prices. The fear of labour troubles is at the back of the inactivity in gold shares. Transvaal Silvers have enjoyed a mild boom, owing to the realisation of their merits by the public, and diamonds have improved on the news of better prices in London. Quotations during the week were as follow:

	Fri., 20th.	Sat., 21st.	Mon., 23rd.	Tues., 24th	Wed., 25th.	Thurs., 26th.
Anglo.-Amer Corp.	30 6*	30 6*	30 6*	31 0	30 0*	32 0
Bantjes Cons.	—	2 6*	—	2 8*	2 10*	3 0*
Brakpan Mines	—	—	52 6†	—	52 6†	47 6*
Breyton Colls	—	—	—	8 0*	—	8 0*
Brick and Potteries	4 6*	4 6*	—	—	—	4 9*
British South Africa	15 0*	15 0*	15 0*	15 0*	—	—
Bushveld Tins	0 10*	0 10*	0 10*	1 0*	—	1 0
Cassel Coals	—	35 0†	35 0†	—	—	—
Cinderella Cons.	4 6†	—	4 6†	—	—	4 6†
City and Suburbans	7 0*	7 2	7 0*	7 4	7 6*	7 6*
City Deeps	51 6*	53 6*	54 0*	57 0*	57 6b	57 0†
Con. Diamonds	32 6†	31 6*	31 6	—	—	32 0†
Clydesdale Collieries	—	—	24 0*	—	24 6*	—
Con. Investments	—	—	—	—	24 0*	—
Con. Langlaagtes	15 6*	15 6*	15 6*	15 6*	15 6*	16 0*
Con. Main Reefs	14 0	14 3	14 3	14 6	15 9	15 9
Con. Mines Selection	22 0*	22 0*	22 0*	—	—	22 0*
Coronation Collieries.	65 0*	—		—	—	—
Coronation Freeholds	1 4*	1 8	1 6*	1 8	1 7*	1 °
Coronation Syndicates	9 0*	9 0*	11 0	12 3	12 0	12 0*
Crown Diamonds	6 10*	7 0	6 10*	8 9*	6 9*	6 10
Crown Mines	—	51 0*	—	—	—	51 0*
Daggafontein Mines	11 0*	11 0*	11 6	11 3	11 6	11 0
Do. Opts. (5 yrs.)	1 0*	1 0*	—	2 9†	—	2 6†
East Rand Coals	2 5	2 7	2 5*	—	2 5*	2 5*
East Rand Deeps	—	—	1 0†	—	—	—
East Rand Props.	7 9*	7 9	7 6*	7 9	8 0	7 9*
E.R. Debentures	£67*	—	£67*	£67*	£67*	£67*
Eastern Golds	—	—	0 9*	—	—	—
Frank Smith Dmds.	15 9	16 6	16 4½	16 3	16 4½	16 1½
Geduld Props.	37 9*	38 6*	38 0*	38 6*	38 6*	38 6*
Ginsbergs	—	—	—	—	—	2 0*
Glencairns	1 3*	1 3*	1 3*	1 3*	—	1 3*
Glencoe Collieries	—	—	6 6*	6 6*	—	—
Glynn's Lydenburgs	10 0*	10 0*	—	10 0*	—	10 6*
Government Areas	84 6*	85 6	85 3	86 0*	86 6	86 0
Jh. Bd. of Ex.	—	—	39 6*	—	39 6*	—
Jupiters	2 0*	2 0*	2 0*	2 0*	2 0*	2 0*
Klerksdorp Props.	2 0*	—	2 0*	2 0*	2 0*	2 0*
Knight Centrals	4 4	4 4*	4 3*	4 4*	4 6	4 9*
Knights Deeps	4 6*	4 6*	4 6*	4 6*	4 6*	4 9*
Lace Props	8 0*	—	—	10 0†	10 0†	9 3
Leeuwport Tins	18 9*	20 0	19 3*	19 0*	10 0*	19 0
Lyndenburg Farms	6 6*	6 6*	7 0	—	6 9*	—
Meyer and Charltons	—	—	81 0*	—	80 0*	80 0*
Middelvlei Est.	1 4*	1 4*	1 4*	1 4*	1 4*	—
Modder B.'s	130 0*	132 6	131 3*	131 0*	131 0*	132 6
Modder Deep	42 3	43 3	43 0	42 10½	43 6	43 3
Modder Easts	22 3	22 3*	22 3*	22 6	22 9	22 6
Do. Opts. (4 yrs)	5 10	6 1*	6 1*	6 6	6 6	6 8
Natal Navi. Col.	25 6*	25 6*	—	25 0*	25 0*	25 0*
National Banks	260 0*	260 0*	260 0*	260 0*	270 0†	260 0*
New Eland Dia	—	—	—	60 0†	—	60 0†
New Era Cons.	8 3*	8 3*	8 0*	8 9	8 3*	—
New Geduld Deeps	1 7*	1 7*	1 7*	—	1 7*	1 7*
New Heriots	—	—	6 6†	5 6*	5 6*	6 9
New Kleinfonteins	7 3*	7 6†	7 0*	7 9	7 6*	7 6*
New Modderfontn	69 3	70 0	70 3	70 0	70 0	70 0
Nigels	—	—	6 0*	—	—	—
Nourse Mines	10 0*	9 0*	10 0*	—	—	10 6*
Pretoria Cements	66 0*	67 3	67 3	68 0	67 0	67 3
Princess Estates	0 7	0 7*	0 6*	—	0 6*	—
Rand Mines	54 0*	54 0*	54 0*	54 0*	54 0*	—
Rand Nucleus	1 3*	—	—	—	1 3*	1 3*
Randfontein Deeps	6 0*	6 1*	6 1	6 0	6 1*	6 1*
Randfontein Est.	17 6	17 6*	18 0	17 6*	17 9	17 9
Roberts Victors	12 0	12 0*	13 6	13 0*	13 0*	14 0*
Rooibergs	6 7*	6 6*	6 9*	6 9*	6 9	6 9
Roodepoort Unitd	—	—	0 6*	0 6*	—	0 6*
Ryan Nigels	3 3*	—	—	3 0*	3 6	3 4*
Shebas	—	2 0†	—	1 0*	1 0*	—
Simmer Deeps	0 6†	0 6†	0 6†	—	0 6†	0 6†
S.S. Breweries	28 6*	28 6	28 6	—	28 9†	28 6
S.A. Lands	4 6*	4 7	4 7	4 7	4 7*	4 9
Springs Mines	39 0	39 3	39 0*	38 6*	38 9*	39 3
Sub Nigels	16 6*	17 3	17 6	17 3	16 9	16 9*
Swaziland Tins	10 6*	—	—	12 6	11 0*	11 0*
Trans G.M. Est.	10 0*	10 0*	10 3*	10 6*	11 0*	11 6*
Van Ryn Deeps	75 6	76 3	76 0	75 6	75 6	74 0*
Village Deeps	—	—	—	—	—	10 0†
West Rand Cons.	5 0†	5 0†	—	5 0†	—	—
Western Rand Est.	4 0*	4 0*	4 0*	4 0*	4 0*	6 3*
Witbank Collieries	51 6*	52 0*	—	52 0*	—	50 0*
Witwatersrands	—	—	10 6*	11 6*	—	—
Wit. Deeps	7 6*	—	9 0†	—	9 6†	9 3†
S.A. Townships	11 3*	11 6	11 6*	11 9	12 0	12 3*
Wolhuters	3 6*	3 6*	3 6*	3 7*	3 9*	3 9*
Zaaiplaats Tins	7 1*	7 1*	7 3	7 0*	7 0	7 0*
Union 5 per cent.	£100½	£100½	£100½*	£100½	£100½	£100
Hume Pipes	24 0†	22 0	22 6*	22 0*	23 6	24 0†
Kaalfonteins	0 3*	—	—	—	0 6†	—
Modder Wests	16 3*	16 6	16 6	16 6*	16 6*	16 9
New State Areas	28 0	28 0a	28 0*	28 0*	29 0*	28 3
Rouxvilles	25 0*	24 9*	25 3	24 3	23 9*	24 0*
S. Van Ryns	7 9*	7 9*	7 9*	7 9*	7 9	7 10*
S.A. Alkalis	24 0*	25 0*	27 0	28 6	32 0	35 0
Transvaal Silver	59 0	61 0	64 0	71 6	82 0	89 0
Transvaal Options	36 3	36 6	40 0	50 0	59 6	59 6
Victory Diam.	1 3	1 4	1 4	1 4*	1 4	1 4
West Springs	15 6	15 9	15 9*	16 0*	15 7½	15 3*
Do. Options	2 7*	2 6*	2 6*	2 9*	2 6*	2 8*
De Beers Pref.	£11⅞†	£11⅞†	£11⅞†	—	—	£11½*
Tweefontein Col.	—	—	—	20 0*	—	20 0*

*Buyers. †Sellers. aOdd lots. bEx London.

BEIRA RAILWAY COMPANY.

A prominent feature of the year's working of the Beira Railway Company to September 30 last is the increase in working costs. The gross revenue on the Beira and Mashonaland sections at £361,261 is down by £1,789, while the expenditure rose by no less than £54,002 to £279,745. Consequently the net revenue has declined £55,791 to £81,515. The net earnings of the Beira line for the year amounted to £28,655, as against £48,738 previously, and are insufficient to pay the company's proportion of the prior lien rent charge interest. Profit and loss account shows a debit balance of £38,389. The class rates on the Beira-Salisbury section, which have always been higher than on the other sections of the Rhodesian system, were reduced on April 1 last. From the same date the rates on the whole Rhodesian railway system were increased by the imposition of a uniform surcharge of 25 per cent. on goods rates and 10 per cent. on passenger fares. With the object of attracting import traffic to Beira, arrangements were made as from April 1 last to refund to importers the 3 per cent. *ad valorem* transit duty charged on certain goods in transit for Rhodesia, pending the approval of the Mozambique Company to the suspension of the collection of these dues until December 31, 1926. In consideration of this suspension the Rhodesian Railways, Limited, has undertaken to pay a subsidy at the rate of £10,000 a year to the Beira and Beira Junction Railway Companies for the period from April, 1920, to December 31, 1926.

VAAL RIVER ACTIVITY.

The Breakwater, on the Vaal River, of larger dimensions than usual, is now in full working swing. Moonlight's Rush is situated on the Pniel Estate, in a rather inaccessible spot, surrounded by high kopjes, and is best approached through Gong Gong, which is about three miles distant. Work on the construction of the Breakwater started about a year ago, a large channel was made to divert the course of the river, and the river bed dammed with two huge walls, and subsequently pumped out. The Pniels, Ltd., through their courteous manager, Mr. A. Cohen, undertook this big task, which was completed about two weeks ago. The ground was divided into blocks of five claims each, and balloted for, the cost of dewatering, etc., being contributed pro rata by claim-holders. The practical work was carried out by Mr. "Sandy" Cowper, in a highly efficient manner, and it was perhaps fitting that he had the first plum in the shape of a 156¼ carat stone, valued at about £20 per carat. Stones of 44 carats, 26, 18½, 12½ and lots smaller have already been found by the other claim-holders, the 44 carat in particular being a very fine stone. These finds bode well for the financial success of the Breakwater, as the working of the diamondiferous gravel has only just commenced, and it is quite possible that four or five months' work will hardly see the ground worked out. The management of Pniels, Ltd., are to be complimented on their go-ahead policy in the interests of the diggers, and as the company possess an enormous area of river frontage, it is hoped by the diggers that they will continue with their good work in the future. By road, through Barkly West, Moonlight's Rush is about 32 miles from Kimberley, and anyone interested in digging operations would be well repaid by a visit.

LIST OF MANUFACTURERS & AGENTS BELONGING TO THE BRITISH EMPIRE AND HER ALLIES.

ANDREW, RESTIEAUX & CO.

Manufacturers of Solders, Bearing Metals, Printers' Alloys, and all classes of non-ferrous Ingot Material. Proprietors of the Knoxite Brand of Antifriction Metals.—246 Fox Street, Johannesburg, 'Phone 3753, Telegrams " Andesia."

BARTLE & CO., LTD.

Loveday House, Johannesburg. 'Phones 3553-4. Sole Agents for Sanderson Bros. & Newbould, Limited, Sheffield; F. Reddaway & Co., Ltd., Manchester; Muntz Metal Co., Birmingham; John Shaw, Ltd., Sheffield; J. W. Roberts, Ltd., Leeds; Gimson & Co., Ltd., Leicester; Johnson & Phillips, London; John Davis & Son, Ltd., Derby, McLachlan and Co., Ltd., Darlington; The Cincinnati Bickford Tool Co.; The Lodge & Shipley Machine Tool Co.; The Weston Electrical Instrument Co.; Fairbanks, Co., London & New York; Edward G. Herbert, Ltd., Manchester; The John Steptoe Co., Cincinnati; Ohio Valley Pulley Works, Maysville; Kearney & Trecker Co., Milwaukee; Sebastian Lathe Co., Cincinnati; Oster Mfg. Co., Cleveland; and many other well-known British and American Manufacturers.

BRITISH GENERAL ELECTRIC CO., LTD

Corner Loveday and Anderson Streets, Johannesburg. Electrical Plant and Supplies of all descriptions. 'Phones 4242-4243; Telegrams, " Current "; Box 2406. Branches at Capetown, Durban, Bulawayo, etc.

CLYDE TRADING CO., LTD.

Howard Building, Main Street. Stores: 51/3, Princes Street, Troyeville. Telegrams: "Clytraco." 'Phone 5964. Box 457, Johannesburg. Carrying large stocks of Copper and Brass Sheets, Tubes and Rods, Zinc and Muntz Metal Sheets, Shovels, Carbide, Barb Wire, Galvanised Iron, Turpentine, White Lead-in-Oil, Red Lead, Linseed Oils, Paints, Creosote, Disinfectants, Coal Tar, Cotton Waste, White, Grey and Coloured Wire Nails and Screws, Flexible Galvanised Wire Ropes. Prices on application.

FRASER & CHALMERS, LTD.

Farrar Buildings, Simmonds Street, Johannesburg; also representing Holman Bros.; T. & W. Smith, Ltd.; Tangyes, Ltd.; G. & J. Weir, Ltd.; and many other British Agencies.

HADFIELDS, LTD.

(Representing Hadfields, Ltd., Sheffield). Offices: 46-47, Cullinan Buildings, Johannesburg. 'Phone 5900. Box 1009. Tel. Add.: "Hecla." Stores: Denver, Transvaal. Manufacturers of "Hecla" Steel Forgings for Marine and other Engineering purposes; Steel Castings of every description; Complete Crushing Plants; Screens and Elevators; Mantles; Concaves; Forged Steel Balls; Jaw Faces; Cheek Plates; Spare Parts for Stamper Batteries; Shoes, Dies, Liner Plates, Cams, Heads, Tappets; " Era " Steel Cam Shafts a speciality; " Era " Manganese Trommel Plates, Mining Requisites, Wheels and Axles, Haulage Rollers and Pulleys, Drill Steel, High Speed Tool Steel, Stainless Steel, Alloy Steel, Rails, Points, Crossings, etc., for Railways and Tramways.

ROBERT HUDSON & SONS, LIMITED.

(Representing Robert Hudson, Ltd., Gildersome Foundry, near Leeds). Offices: Cullinan Buildings, Johannesburg, 'Phone No. 1731. Telegraphic Address: "Raletrux." Manufacturers of all classes of Light Railway Material for Mining and Construction use. Rails in all weights per yard. Switches and Crossings, Standard Trucks of various capacities kept in stock.

HUME PIPE CO. (South Africa), LTD.

Manufacturers of Reinforced Concrete Pipes for Irrigation, Drainage, Pumping Mains, 3ft., 4ft., 6ft. and 8ft. lengths. Reinforced Concrete Tanks, 2ft. 6in. diameter, 1ft. to 8ft. high. Reinforced Concrete Silos, 3ft. to 6ft diameter up to 40ft. high. P.O. Box 6101, Johannesburg.

PEARSON'S HYCOL, LIMITED.

Manufacturers of Hycol Disinfectant Fluid (*guaranteed* coefficient 18-20) and " Pacolol " Brand of Lysol. Contractors to Union Government. Works: Hull, Yorkshire. S.A. Head Office: Ginsberg Chambers, Main Street, Johannesburg. 'Phone 2472. P.O. Box 1758. Branches: 33, Hout Street, Capetown; 'Durban, P.O. Box 245.

PHOENIX FOUNDRY.

Iron and Brass Founders, General Engineers and Blacksmiths. Office and Works: Hay Street, Ophirton. P.O. Box 3031, Johannesburg. 'Phone 1641. Sole Agents for Carntyne Steel Castings Co., Glasgow. Stocks of Tappets, Skip Wheels, Heads, etc. Casting Specialities: Pipe Fittings, White Iron Pump Spares and Tube Mill Liners.

SOUTH AFRICAN LUBRICANTS AND CHEMICAL WORKS, LIMITED.

Head Office: 51 & 52, Club Arcade, Smith Street, Durban. P.O. Box 31. Tel. & Cable Add.: " Plumbago." 'Phone 1900. Works: Durban—Corner Pine & Prince Alfred Streets ('Phone 236). Johannesburg—Main Reef Road, Denver. P.O. Box 7, Denver. Tel. Add.: "Plumbago," Denver. 'Phone 75, Cleveland. Manufacturers of " Porpoise " Brand A.F. Grease, ' Trek " Brand Axle Grease.

J. V. STANTON & CO., LTD.

Southern Life Buildings, Representing: Park Royal Engineering Works, Ltd. (London), Switchgear, Instruments. "Rex" Fire Extinguishers; Fleming, Birkby and Goodall, Ltd. (Liversedge, Eng.), Tramway Equipments; Henry Wiggin & Co., Ltd. (Birmingham, Eng.), Resistance Materials; Walsall Hardware Manufacturing Co. (Walsall, Eng.), Conduits, etc.; Canadian Porcelain Co (Hamilton, Canada), Insulators, etc. Mining Material other than Electrical, also stocked.

S. SYKES & CO., LTD.

Southern Life Buildings, Johannesburg. Telephone No. 2190. P.O. Box 2303. Telegrams: " Psyche." Sole Agents for Robey & Co., Ltd., Crossley Bros., Ltd., E. R. & F. Turner, Ltd., Worthington Pump Co., Ltd., C. A. Parsons & Co., Ltd., Crompton & Co., Ltd., Reyrolle & Co., Ltd., and Sandycroft, Limited.

E. W. TARRY & Co., Ltd., Austral Iron Works

Corner of Anderson and End Streets, Box 1098. 'Phones 149 and 626, Johannesburg. Iron and Brass Founders and General Engineers. Machine Cut Gears in Raw Hide and any Metal a speciality, **and in Cast Iron up to 18 feet diameter.** Sole Manufacturers and Agents for Tregaskis Patent Drill Heating Furnace.

TRANSVAAL GRAPHITE COMPANY.

Foundry Plumbago. Flake Graphite. Pipe Jointing. "Mnrrella" Boiler Composition, Graphite Pigment, Electrical Graphite, etc. Offices and Works: 234, Anderson Street, Johannesburg. 'Phone 2560.

WADE & DORMAN, LTD.

Box 2997; Telephone 1460, Johannesburg. Structural Steel Work of all kinds. Large Stocks of Joists, Channels, Angles, Tees, Plates, Chequered Plates, etc. Agents for British Steel Piling Co. Stockyard and Works: 217, Main Street.

C. F. WIENAND.

Commercial Exchange Buildings, Johannesburg; 'Phone 3. Sole Agent for Toledo Steels of all classes, Butterley Iron, Barwell's Bolts, Scott's' Ropes, Mine Lubricants, Ltd. All highest quality.

C. H. WILKINS & CO.

Engineers and Mining Machinery Merchants, 97-98, Cullinan Buildings Johannesburg. P.O. Box 2244. 'Phone 5495. Telerams: " Rockborer." Agents for: R. S. Newall & Son, Ltd., Liverpool Wire Rope Manufacturers; Allen Barton & Co., Ltd., St. Helen's Junction, Lancashire, Steam and Electrical Hauling Engines, Air and Steam Hoists, Pumps, etc.; The Mining Engineering Co., Ltd., Sheffield, Rock Drills, Hammer Drills, Rescue and Reviving Apparatus; R. Morris & Co., Farnworth, Lancashire, Corrugated Steel Mining Trucks, etc., etc.; Burys & Co., Ltd., Steel Manufacturers, Sheffield, Drill Steel, Tool Steel, etc.

PERSONAL.

The Hon. F. S. Malan, Minister of Mines, paid a visit to the Rand on Wednesday.

* * * *

Capt. Slade, of the Consolidated Main Reef, has returned from a two months' recuperative trip after his accident.

* * * *

Mr. Hans Meyer, M.I.M.M., of the mining engineering staff of the Corner House, has left on a six months' trip to England.

* * * *

His many friends will regret to hear that Mr. H. A. Read, financial manager of the Rand Mines, Ltd., sustained concussion of the brain in a nasty trap accident on Monday evening.

* * * *

Bechuanaland Exploration Co. record the death of Mr. T. Donald, who had been a director of the company since 1917, previous to which he was secretary to the company for many years.

* * * *

Capt. H. A. G. Jeffreys, O.B.E., Secretary of the Chemical, Metallurgical and Mining Society of South Africa, has been notified that he has been granted the decoration of Chevalier, Ordre de la Courronne, by His Majesty the King of the Belgians.

* * * *

Dr. Beef, the well-known lady authority on food values, has accepted an invitation from the Rand Mines, Ltd., to visit the mines and report on the question of mine natives' food.

* * * *

Lord Teynham and Mr. H. L. Stokes have resigned their seats on the board of Rhodesian Broken Hill Development Co. The Central Mining and Investment Corporation, who are very largely interested in the company, have nominated Sir Harry Ross Skinner and Mr. T. J. Milner as their representatives.

Rhodesia Broken Hill.

It is seldom, we imagine, that such a remarkable change is effected in the accounts of a mining company within the short period of twelve months as is shown in that of the Rhodesia Broken Hill Development. For the year ended December 31 last a profit and loss account is given, and in what may be regarded as the first period of the company's operations it is possible to pay a dividend of 10 per cent. So far the management has confined its energies to the treatment of lead ore, and the balance of the production which has not been disposed of locally was sold in this country at the average market price ruling at the time of delivery. Lead sales reached the large total of £366,851, while metal in transit has a value of £22,485, the net profit earned, after providing for royalty and depreciation, amounting to £100,889. After payment of the dividend there is a balance forward of £65,889. The balance sheet shows an exceptionally strong position. Preliminary expenses and underwriting commission have evidently been written off premium on shares account, so that the item "purchase of property" now stands at £119,243. The total assets at December 31, 1918, figured at £210,701, and now reach £546,853. The company has invested £40,000 in Treasury bills, debtors amount to £211,958, and creditors and bills payable to £77,315. At the present price of the shares the whole undertaking is valued in the market at only £770,000, and in this connection it should be pointed out that the body of rich lead ore reaches a depth of 150 ft., with favourable prospects of continuance. Ore has been proved in two places 250 ft. apart at vertical depths of 300 ft. There is as yet no evidence of the limitation in depth of the ore bodies. Two new furnaces are expected to be completed early next year, and tests are now being made in connection with processes for recovering zinc. The prospects, it will thus be seen, are remarkably good. Sir Harry Ross Skinner and Mr. T. J. Milner represent the Central Mining and Investment Corporation on the Board.

EDENDALE DEVELOPING SYNDICATE, LTD.

(Incorporated in the Orange Free State).

The above Syndicate has been registered with a capital of £15,000, divided as follows:—

£8,500	to Vendors and Promoters.
£5,000	Working Capital (fully subscribed),
£1,500	in Reserve to be issued as and when it may be considered advisable.
£15,000	

The officers of the Syndicate are:—

Directors:

1. FRANCIS JOHN QUINTON.
2. JAMES HENRY LOUIS MANISTY.
3. HENRY ARTHUR YOUNG, J.P.

Solicitors:

MESSRS. SANER AND NATHAN, Johannesburg.

Bankers:

Messrs. THE NATIONAL BANK OF S.A., LTD. Head Office, Johannesburg.

Auditor:

G. K. TUCKER, Johannesburg.

Secretary and Registered Office:

E. G. COLLINS, 94 and 134, Stock Exchange Buildings, Johannesburg.

Objects of the Syndicate.—The objects of the formation of the Syndicate are to prospect, dig, mine, work, remove, and dispose of all precious base metals and minerals, but not any precious stones in, upon, or under certain remaining extent of a portion called "Edendal," of the freehold farm "Nooitgedacht, No. 548" situated in the district of Pretoria, in extent 2,000 morgen, for the period ended 31st March, 1923, with right of purchasing within that period any payable mine discovered on the terms set forth in a contract which lies open for inspection of registered shareholders at the office of the Secretary.

The initial object of the Syndicate is to thoroughly prospect the property, and also locate the lode which Mr. Hicks is of opinion exists between the No. 1 Shaft and the most Eastern part already opened up. This has been done, as will be seen by Mr. Hicks' report, extracts from which are given:—

REPORTS.

The following are extracts from reports made by the Manager, Mr. H. Hicks:—

Report No. 1 (made at the inception of the Company, April, 1920).

"**No. 1 Mine.**—A shaft sunk to a depth of 100ft., 200ft. West of the present Main Shaft, disclosed an ore body 30in., and assaying 70 per cent. lead and 10ozs. silver. In the East Drive the ore was mixed with zinc; average width, 15in.

"I would like to draw special attention to the stretch of ground lying between No. 1 Shaft and the most Eastern point opened up. This ground (2,700ft. in length) may be considered as virgin, although indications are not wanting that the lode will be found continuous over the whole distance, and when opened up will yield an enormous tonnage of ore.

"There is a considerable amount of machinery on the property, which, with a few additions, can be made to serve the purposes of the Syndicate until a larger working company is formed.

(Signed) H. HICKS."

Report No. 2, dated 20th August, 1920, addressed to the Board.

"Since operations on the Syndicate's property were commenced a 5-stamp battery has been erected, with engine, boiler, and all necessary machinery for working the same, including pumps, piping, and Wilfley tables for concentration of the ore.

"I wish to draw the attention of the Board to a paragraph in my report at the inception of the Syndicate in which I stated:—'I would like to draw special attention to the stretch of ground lying between No. 1 Shaft and the most Eastern point opened up. This ground, some 2,700ft. in length, may be considered as virgin, although indications are not wanting to show that the lode will be found continuous over the whole distance, and when opened up should yield an enormous tonnage of ore.'

"I am pleased to inform the Board that a new lode has been located in this stretch of ground, which was referred to in the above paragraph. A prospecting shaft was started from the surface, and sunk to a depth of 38ft.; the average width of this lode is 5ft. between walls, carrying 2ft. of first-class ore, and assaying 80 per cent. lead, 130dwts. silver. The remaining 3 ft. will run on an average 20 per cent., which was looked upon in the United States as good milling ore, yielding about 1 ton concentrates in 4 tons crushed.

"The above shows a higher percentage of lead than that taken from the old workings in No. 1 Shaft, which ran in the neighbourhood of 70 per cent. lead and 200dwts. silver.

"In the meantime work has been suspended on the new discovery, on account of my being unable to cope with the water by windlass.

"As you know, we have a pump on the property that can easily cope with this water, and I hope to have it working as soon as it is installed, which work is now in hand.

"**No. 2 Shaft.**—A new headgear has just arrived on the property, and the engine and boiler there are being overhauled. I would recommend that the drives on the first level at this shaft should be pushed on with all speed eastwards, there being about two miles to the boundary of the property, which is clean and unbroken, no dykes or faults being encountered, the dolomite lying some distance south of the line of the lode.

"Having had so many years' experience on this property, I look for a bright future eastward of No. 2 Shaft

"The amount of milling ore on the surface, and with the first-class ore in sight in the new discovery, we ought soon to be shipping in the neighbourhood of 100 tons per month, which I hope to double before Christmas, if nothing unforeseen occurs.

"(Signed) H. HICKS, Manager."

TRADE AND INDUSTRIES SECTION.

Week in the Mining Material & Engineering Trades

STANDARD BANK AND AFRICAN BANKING CORPORATION MERGER—END OF ENGINE-DRIVERS' STRIKE—SOUTH AFRICAN SHIPPING RATES—EXPORT OF COAL FROM SOUTH AFRICA TO EUROPE—GOLD AND METAL MARKETS—IRON AND STEEL—TIMBER AND BUILDING MATERIAL—ELECTRICAL GOODS.

[*By a Special Correspondent.*]

A topic of considerable interest this week in commercial circles has been the contemplated fusion of the Standard Bank with the African Banking Corporation, which, although it has been on the tapis for several months, has only now been announced. On the strength of the merger, which it is understood is almost a *fait accompli*, the shares of the latter institution have risen during the past few days from £7 to £7¾. In thus consolidating and increasing its financial position the Standard Bank is following the lead of the National Bank here and of several very important banking corporations in Great Britain recently. Another satisfactory feature to be noted is the strong probability of the engine drivers' strike coming to an end before these notes appear, and the resumption of normal relations between the Chamber of Mines and the engine drivers and firemen.

SOUTH AFRICAN SHIPPING RATES.

It is understood that the British lines have made special contracts with exporters of certain commodities, which are most favourable to the exporters. It is also stated that in the event of the Continental competition being still continued, arrangements will soon be made to place the British exporters in at least as favourable a position as Continental exporters. In this connection it is satisfactory to note that a large amount of tonnage has been chartered to bring coal from South Africa to Europe, but owing to congestion at our ports serious delays have been caused to shipping. China also appears willing to ship a good deal of coal, and it is understood that some 200,000 tons have been offered for delivery in Europe. The threatened coal strike in Britain in September it is much to be hoped may be averted, as the consequences of such a strike are too appalling to contemplate, not only as regards the manufacturing, but also domestic and other interests.

Gold has again firmed, and is now ruling at 115s. per oz. It is said that Russia's gold reserves amounted in 1914 to £160,000,000—the greatest accumulation in the world—but no longer so. The Siberian production of gold, which was £9,000,000 in 1914, was only £2,500,000 in 1919—which under the present chaotic conditions in Russia is not to be wondered at. The *Times* states that the world's stock of gold money has increased since 1913 by 356 millions sterling to 1,952 millions sterling, based on gold at 85s. per oz.

At the metal market in London last week business was restricted and prices declined. Lead advanced on fresh buying from America; for pig-iron there was an eager demand, as prices are expected to advance, supplies being scarce. As regards steel, the home demand is good, but owing to shortage of raw material Armstrong & Whitworth have discharged some 1,000 employees. A fact in connection with the steel industry in Germany is the suppression of all information concerning the number of blast furnaces in operation, tonnage, and the production of pig-iron and steel throughout Germany.

IRON AND STEEL.

One important dealer states that he has been extremely busy this week, that business is good, and that there are plenty of inquiries for material. Oversea prices, on account of labour demands, coal shortage and the imminent strike and increased freights, are still on the up grade, approximating 25 per cent to 50 per cent. There is, he says, a scarcity of material notwithstanding that the local manufactories are working up to their full capacity, and are, it is understood, full up with orders to the end of the year. Imported goods have a tendency to rise, and shipments which have recently arrived show an increase over preceding ones of 25 per cent. to 50 per cent. Steel plates, notwithstanding numerous small shipments coming forward, are increasing in price, and are still scarce, the mines having absorbed a great quantity. A lot of steelware—angles, etc.—has been sent to Capetown. As a matter of fact, two or three engineering firms have been started there, and are making satisfactory progress. There is some talk of the establishment of a shipping yard at Durban, and it is said that leading shipbuilding firms at Home have sent out a representative to go into matters. This is, of course, at present more or less in the air, but is bound in the near future to become an accomplished fact. Bolts, nuts and rivets are scarce, and are being rapidly absorbed at an advancing price, and merchants have recently received a somewhat severe shock at the price of material landed here compared with local prices. One of our leading importers stated that a shipment of material newly arrived simply could not compete with the local article, and is accordingly being held over. Other importers state that the strikes are affecting business, and that things are very quiet on the Commercial Exchange. Prices here are much about the same as last week. Steel plates in nearly all sizes are still very scarce. Imported steels range from 31s. to 35s., high tensile steel, small sizes, 40s., and bigger 37s. 6d. per 100 lbs. The Vereeniging Corporation, we understand, have large orders for fencing stands—railway section—weighing 14 lbs. a standard, punched to 6 holes for Government standard. There is an increasing demand for steel castings. The Corporation have just executed large orders for steel castings for ship repairs. The United States Steel Products Corporation are still unable to accept orders, the time of delivery and the price on completion precluding them from operating.

QUOTATIONS.

Imported mild steel is 37s. 6d. to 40s.; drill steel, 7½d.: rolled, 1s 3d.: brass rods, 2s. 3d.: plates, 2s. 6d.; mine rails are still on the up grade, ranging from 55s. to 70s.: picks, 2½ and 3 lbs. 37s. 6d. doz., 4 lbs., 45s. 6d., 6 lbs. 63s. 6d., 7 lbs. 72s. 6d. Shovels, English,

ALMOST

2,000 TONS IN STOCK

Dunswart, Vereeniging and Imported Iron and Steel, etc.

Large Flats, Rounds and Squares in Iron and Steel, Plates, Angles, Channels, Spring and High-speed Steel, Naval Bronze, Manganese, Bronze and Brass Rods, Copper Rods, Sheets and Tubes now being delivered.

STOCK SHEETS ON APPLICATION.

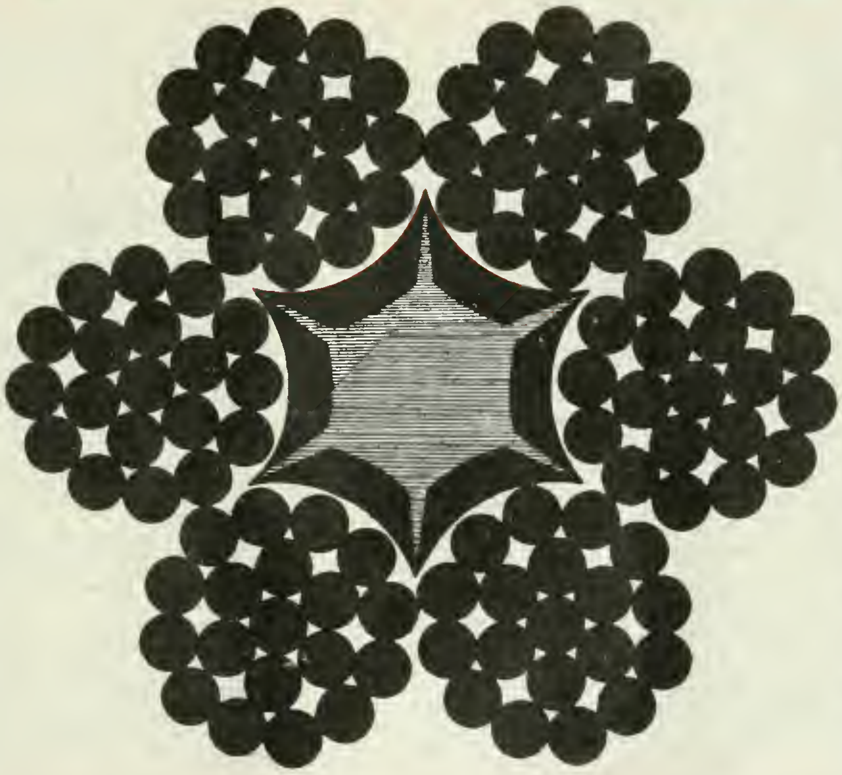
M. BROWN, 180, Main Street,
JOHANNESBURG.

Telephones 5770 and 3248.
P.O. Box 1826.
Tel. Address: "MAUBROWN," Johannesburg.

CRAVEN & SPEEDING
BROS.
SUNDERLAND
ENGLAND.

Sole Agents for Transvaal and Natal:

CLYDE TRADING Company, Ltd.,
Howard Buildings,
C/o MAIN & LOVEDAY STREETS,
Box 457. :: **JOHANNESBURG.** :: 'Phone 5964.



It provides greater safety than can be secured by the regulations attached to the New Mines Act, because it is impossible for any acid in the hemp core to corrode the wires in the strands. A rope with an ordinary core frequently appears to be in good condition on the exterior, while its interior is in a dangerous condition.

SOLE MANUFACTURERS.
"WESTGARTH PATENT CORE"
WIRE ROPE.

are still firm at from 75s. to 80s. doz.; wheelbarrows, 70s. to 75s.; Canadian about 70s.; shafting, 7½d. to 8½d.; bolts and nuts, ⅜ in., 1s. 6d. lb.; ½ in., 83s. 6d. 100 lbs.; ⅝ in., 77s 6d.; ¾ in., 72s. 6d.; in., 70s.

TIMBER AND BUILDING MATERIAL.

Deals 3 x 9 and scantlings are ruling at 2s., 2s. 1d.; floorings, 10½d., 10½d. and 10¾d. for special lengths; ceilings, 7¼d., 7½d.; galvanised iron, 1s. 5d. Shooks are fair without being plentiful, and are now arriving a little faster, as the congestion at the coast in respect of railage facilities is somewhat eased. Goods are, as a matter of fact, now coming to hand much more expeditiously than has been the case for some months past, a truck taking now about four days only from Delagoa Bay, instead of about three weeks or more as has usually been the case. A fair amount of new work is in progress. On the Commercial Exchange dealings have been on the quiet side. In the second hand timber and iron market there is no change for the better to report; stocks are arriving slowly and orders at the moment are by no means plentiful: the market may be said to be stagnant at present

ELECTRICAL GOODS.

Business in the electrical goods market in both town and country is good and has been fairly brisk during the past fortnight. Materials in very fair quantity are arriving from Britain and the Continent. A leading dealer has just received a large consignment of lamp shades from Holland at prices ranging from 13s. to 20s. dozen, home price, as against British quotations of from 30s. to 48s., which is only another way of saying that the Continental workers seem to be facing labour troubles, etc., more heroically than their British confrères. At the moment there are no big contracts on hand, but, notwithstanding, a fairly good volume of business is being done locally and even along the coast as far afield as Port Shepstone, etc. As previously mentioned in these notes, large orders occasionally come from Capetown, Kimberley and other important Union centres, which the latter cannot supply. Although no change in prices has as yet occurred, the large shipments of material arriving and still on the way are bound very shortly to lower existing prices. Lamps at the moment appear to be scarce, but supplies are, we understand, not far off. Radiators are now being sold at a discount of 20 per cent.

STRAY NOTES.

Since the Armistice, the shipyards of the United Kingdom have regained their former supremacy. At the end of June the tonnage of vessels under construction in British yards was at least 50 per cent. greater than the tonnage building in the United States. Fifteen months ago America had almost double the tonnage then under construction in Great Britain, so that the recovery is really remarkable.

H.E. Proprietary (New).

Mr. F. H. Hamilton, at the recent annual meeting of the H.E. Proprietary, said, *inter alia*:—"We have assets which no doubt could be sold as a whole at a very large profit on the figure at which they stand in our books. Unfortunately, the Inland Revenue authorities would regard this as income, and 60 per cent. of the profit would have to be paid as excess profits duty. Obviously, therefore, that method is barred. We could, no doubt, raise fresh capital, but under present conditions we should have to pay an unduly high price for it. If, and when, conditions change, we shall certainly take advantage of the opportunity, but for the time being we have to consider the facts as they are. The sound rule for a company in this position is that it should not have commitments which it cannot meet from its own resources, and it was this governing consideration that finally determined our decision. I do not think you will have to wait very long before this policy is vindicated, and I can only add that if, and as soon as, the general outlook becomes clearer we shall not hesitate to modify our policy accordingly."

African Banking Corporation, Ltd.

Authorised Capital	£2,000,000
Subscribed Capital	£2,000,000
Paid-up Capital	£1,000,000
Reserve Fund	£ 360,000
Reserve Liability of Shareholders	£1,000,000
	£2,360,000

Head Office: 63, London Wall, London E.C.

Branches throughout South Africa and Agents and Correspondents throughout the World

Rhodesia Railways.

The report of the Rhodesia Railways Trust to 31st March, 1920, states that the issued capital is £2,005,767. During the year ended 30th September, 1919, working of Rhodesia Railways, Ltd., showed a profit of £58,532, as compared with £230,169 for previous year. Credit balance on net revenue account at 30th September, 1918, after payment of dividend of £80,000, was £230,358. Adding to this sum the balance of £58,532 for 1918-19 gives a credit balance on net revenue account at 30th September, 1919, of £288,890. Of this sum £100,000 has been transferred to general reserve, and the balance of £188,890 has been carried forward. In the case of the Mashonaland Railway Company, the loss for the year ended 30th September, 1919, amounted to £93,976, compared with £40,312 previous year. As a result, debit balance at 30th September, 1918, of £1,544,841 had increased to £1,638,818. Taking the two railway companies together, working result during the year ended 30th September, 1919, was a loss of £35,444, as compared with a profit of £189,857 for previous year. The net earnings of Rhodesia and Mashonaland Railway Companies (including the Beira Company's line from Beira to Umtali for six months ended 31st March last show an increase of £70,231. Advances to Mashonaland Railway Company, including accrued interest to 31st March, amounted at that date to £1,534,763, as against £1,450,762 at 31st March, 1919. The balance to credit of profit and loss account at 31st March, 1919, was £128,630, of which payment on 12th November last of dividend of 4 per cent. absorbed £56,161, leaving £72,468 to be carried forward.

General Mining and Finance Corporation, Limited.

(Incorporated in the Transvaal.)

P.O. Box 1242.
General Mining Buildings,
Johannesburg, 26th July, 1920.

NOTICE IS HEREBY GIVEN that the Twentieth Ordinary General Meeting of Shareholders of the General Mining and Finance Corporation, Ltd., will be held in the Board Room, General Mining Buildings, Johannesburg, on THURSDAY, the 2nd day of SEPTEMBER, 1920, at 11 a.m., for the following purposes:—

1. To receive and consider the Balance Sheet and Profit and Loss Account, and the Directors' and Auditors' Reports for the year ended 31st December, 1919.
2. To elect a Director in place of Mr. Martin Luebeck, who retires in terms of the Articles of Association, but who is eligible, and offers himself for re-election.
3. To appoint an Auditor or Auditors for the ensuing year, and to fix the remuneration of the retiring Auditors.
4. To transact any other business which ought to be transacted at an Ordinary General Meeting.

The Share Transfer Books of the Corporation will be closed as follows:—

(a) At the Head Office from the 30th of August to the 16th of September, 1920, both days inclusive.

(b) In London from the 30th of July to the 7th of August, 1920, both days inclusive.

Holders of Share Warrants to Bearer desiring to be present or represented at the Meeting should deposit their Shares at the places and within the times following:—

Johannesburg: At the Head Office of the Corporation, General Mining Buildings, **at least three days before the time appointed for the holding of the Meeting**; or

London: At the London Office (Transfer Department), Winchester House, Old Broad Street E.C.;

Paris: At the Paris Office, 29, Rue Taitbout; at the Bank de l'Union Parisienne, 7, Rue Chauchat; **at least thirty days before the date appointed for the holding of the Meeting.**

By Order of the Board,

H. W. DALTON,
Secretary.

The S.A. Mining & Engineering Journal

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

Established 1891. Established 1891.

Vol. XXIX., Part II.] Johannesburg, Transvaal, September 1, 1920. [No. 1510.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

Agents for Great Britain and America: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

Annual Subscription Rates: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

	PAGE
Notes and News	681
Editorial:	
South African Company Law Reform	683
Important Discovery of Pure Crude Petroleum	685
Government Report on African Oils	686
The Latest Silver Lead Flotation	687
Mining Leases on the Far East Rand: Inspector's Report	689
The Position in the Tin Mining Industry	691
Project to Stop Diamond Rushes	692
Men Favour Amalgamation of Mine Benefit Societies	693
A Big Power Scheme for the Diamond Fields	695
Coal and Oil Shale Development on the Geluk Property	696
Encouraging Report from Pilgrims Rest	696
Oil from Bituminous Shale and Brown Coal	697
The Improving Demand for Diamonds	698
Correspondence and Discussion: "*Re* Anticlines in the Black Umfolozi Valley"; "Coal Outputs and Minerals in the War Period"; "A Native Training School"	699
The Week in the Sharemarket	701
Trade and Industries Section:	
The Week in the Mining Material and Engineering Trades	703
Big Lead and Zinc Deposits of the North	704

Mining Notes & News.

A New Cement Flotation.

Elsewhere in this issue will be found the abridged prospectus of a new Cape Portland cement making company that is starting under sound auspices. The company is acquiring as a going concern the successful lime-making business of the Herman-Piquetberg Company, and has secured the services of Mr. A. T. Hall as manager. £70,000 in £1 shares is now offered to the public out of a registered capital of £325,000. As the prospectus reached us only as we go to press a lengthy notice is held over till next week.

* * * *

The African Vanadium and Lead Mines Flotation.

Some delay has been caused in the flotation of the African Vanadium and Lead Mines by the decision to register the company in the Transvaal rather than in the O.F.S. as at first decided. Reports from other independent mining engineers in addition to that of Dr. Merensky have been received and a representative of the Mines Department has also visited the property. The issue of their reports will be awaited with interest.

* * * *

The Big Platinum Find.

The report by Mr. Grindley Ferris on the big platinum discovery in the Cala district of Cape Colony is not yet available, but it is understood to be of a most favourable nature. The ore body is said to extend thirteen miles and the values are extraordinarily high. The African Platinum Mines, Ltd., are the owners and several big Cape houses are behind the venture.

* * * *

Edendale Developing Syndicate.

The Edendale Developing Syndicate, which was recently registered with the comparatively small capital of £15,000, is attracting attention by its prospects of early production. The manager, Mr. H. Hicks, in his latest report, dated August 20, says, *inter alia:* "I am pleased to inform the board that a new lode has been located in this stretch of ground which was referred to by me elsewhere. A prospecting shaft was started from the surface and sunk to a depth of 38 ft.; the average width of this lode is 5 ft. between walls, carrying 2 ft. of first-class ore and assaying 80 per cent. lead, 30 dwts. silver. The remaining 3 ft. will run on an average 20 per cent., which was looked upon in the United States as good milling ore yielding about ton concentrates in 4 tons crushed. The above shows a higher percentage of lead than that taken from the old workings in No. 1 shaft, which ran in the neighbourhood of 70 per cent. lead and 200 dwts. silver. In the meantime work has been suspended on the new discovery on account of my being unable to cope with the water by windlass. As you know, we have a pump on the property that can easily cope with this water, and I hope to have it working as soon as it is installed, which work is now in hand. The amount of milling ore on the surface, and with the first-class ore in sight in the new discovery, we ought soon to be shipping in the neighbourhod of 100 tons per month, which I hope to double before Christmas if nothing unforeseen occurs."

General Mining Meeting.

Presiding on Thursday at the annual meeting of the General Mining and Finance Corporation, Ltd., Mr. Errol Hay said: Gentlemen, owing to the absence in Europe of your chairman, Sir George Albu, the chair should have been taken at to-day's meeting by your acting chairman, Mr. Arthur French. I deeply regret to inform you, however, that within the last few days Mr. French has suffered a very serious bereavement which makes it impossible for him to be present. I feel sure that I am only voicing the opinion of all shareholders when I say that our united and heartfelt sympathy goes out both to Mr. French and his family in their deep sorrow. Under the circumstances, as a mark of respect to Mr. French, and since it is obviously desirable that he should have an opportunity of addressing you personally at an early date, I beg to move that this meeting be now adjourned for one fortnight, that is, until September 16, at the same time and place. The motion was agreed to.

* * * *

What the Native Wants!

An eloquent plea for the native is contained in the current issue of our excellent contemporary, *Umteteli Wa Bantu*, the purport of which may be gleaned from the following quotation:

> "Give us the opportunity to educate ourselves. While we are learning of reading, writing and arithmetic enough to enable us to transact our own business, help us to equip ourselves and our children for a life of industry, and bring segregation within the scope of practical politics. Give us the opportunity to learn the skilled trades, and hasten our independent development. Let us learn how to live by our own exertions in the native areas that are to be, and help us to become a people unto ourselves with privileges to value and responsibilities to be proud of. Ignore the colour bar, and establish Trades Schools for natives in every town and every centre of the Union. Extend the curriculum of the existing native schools and cause to be taught the subjects which are of real worth in after life. Encourage industry and strive to imbue the native youth with a proper sense of the dignity of labour. Place within his reach an education which will enable him to be of practical service to his own people, and fit him for the full citizenship which cannot permanently be withheld. The skilled craftsman is as fine a production as the many-lettered graduate, and would be infinitely more useful to a self-contained native-community."

* * * *

Union Statistics.

The latest available statistics from official sources regarding population and social matters, cost of living, production, trade, transport, finance, etc., is contained in the quarterly abstract of Union statistics compiled and published by the Director of Census. This abstract is designed as a supplement to the Official Year Book of the Union. The information contained therein is necessarily given in the most condensed form, but will be found to be of the greatest value. The estimated population of the Union at June 30 of this year was 7,307,377, comprising 1,503,904 whites and 5,801,473 coloureds. There is a mass of information dealing with the rates of wages in certain occupations, together with the hours of labour, the latter ranging from 44 hours per week for linotype operators to 58 hours per week for barmen. Interesting tables giving the numerical strength of the various trades unions are included. Significant of the wave of industrial unrest common to most countries, and not excluding South Africa in its unhealthy influence, is the fact that during the year 1919 there were no fewer than 17 strikes in the Union affecting 23,799 workpeople, the total duration of these strikes being 578½ days, or an aggregate number of days lost of 536,538, and an estimated loss in wages of £259,635. Shorter hours, increased wages, improved conditions, refusing to work with non-union men, these in the main were the reasons for precipitating a stoppage of work, while in not a few cases the reasons given appear in the light of subsequent events somewhat trivial. The percentage increase in the retail cost of food in the United Kingdom and the British Dominions over 1914 shows that in the United Kingdom the increase in 1920 was 158 per cent., in Australia 73 per cent., in Canada 115 per cent., in New Zealand 63 per cent., and in South Africa 94 per cent. Taking 1,000 as the 1914 basis the increases in wholesale prices are represented in the United Kingdom (Board of Trade figures) by 3,193, Canada 2,594, New Zealand 1,892 and South Africa 2,500.

The Standard—A.B.C. Merger.

The Standard Bank's purchase of the African Banking Corporation is on a basis of two new Standard Bank shares of £20 each for three A.B.C. shares of £10 each; while in addition the sum of £67,500 is distributed among A.B.C. shareholders. Three A.B.C. directors join the board of the Standard Bank. The amalgamation, which is subject to the British Treasury, means an increase in the subscribed capital of the Standard Bank of from 6¼ millions to 9 millions, the paid-up capital from 1½ to 2¼ millions, and the reserve from 2¼ millions to 3 millions; current accounts and deposits from 53½ to 62 millions. The deal will make the Standard the biggest bank in South Africa.

* * * *

Modder Deep.

The report of the directors of the Modderfontein Deep Levels for the quarter ended June 30 shows that the total development footage done was 1,860 feet, while the total footage sampled was 1,280 feet, of which 900 feet was payable, having an average assay value of 14·7 dwts. over 48 inches. The working revenue (gold at standard price) was £278,228 14s. 8d., or £2 4s. 9d. per ton milled; the working costs were £141,824 14s. 5d. or 22s. 10d. per ton milled; and the working profit was £136,404 0s. 3d. or 21s. 11s. per ton milled. The gross profit was £171,592 6s. 5d The estimate of normal income tax and Provincial tax was £15,000; tax on dividend No. 11, £33,333 6s. 8d.; mine development reserve, £231 17s. Dividend No. 11 of 60 per cent. (3s. per share) was declared on June 23, payable to shareholders registered at June 30, absorbing £300,000.

* * * *

Geduld Position.

The report of the Directors of the Geduld Proprietary Mines for the quarter ended June 30 shows that the total development footage, including incline shafts, was 4,039 feet; the total footage sampled was 2,505 feet, of which 825 feet was payable, having an average assay value of 23·3 dwts. over 33 inches. The working revenue (gold at standard price) was £193,167 4s. 11d. or 30s. 1d. per ton milled; working costs were £154,906 17s. 10d. or 24s. 1d. per ton milled; and the working profit £38,260 7s. 1d. or 6s. per ton milled. The gross profit was £65,439 11s. 6d. The issued capital of the company has been increased by £184 to £1,172,597. During the quarter No. 7 shaft was sunk 160 feet, its depth at June 30 being 578 feet. Dividend No. 11 of 7½ per cent. (1s. 6d. per share) was declared on June 23, payable to shareholders registered at June 30, absorbing £87,944 15s. 6d.

* * * *

One Thousand Claims Diamond Syndicate, Ltd.

This syndicate is making its public appearance this week. It is capitalized at £30,000 in 2s. 6d. shares. The working capital is £5,000. All shares have been subscribed for, less £5,000 held in reserve. The directors are: Dr. John van Niekerk, M.D. (alternate, R. D Robins-Browne), Messrs. A. E. A. Williamson, Esq., M.L.A., Seton B. J. Guthrie (alternate, A W. Tucker), Geo Beet, Esq., Kimberley (alternate, Alec Vangelder), and M. M. Lichtenstein, Esq. We understand that excellent finds have been made on the claims, and these facts becoming known the public are manifesting considerable interest in the venture. Briefly stated, its objects are to work an extensive area of good heavy diamond alluvial deposits discovered on the estate of the New Vaal River Estate and Exploration Company, Ltd., situate at the confluence of the Hart and Vaal Rivers, within forty-five miles of Kimberley, by the aid of an efficient plant which is already erected according to the company's plan and specifications and washing operations have now begun. Further particulars will appear in our next issue.

* * * *

Standard Bank Dividend.

The board of directors of the Standard Bank in London cable that, subject to audit, the directors declare an interim dividend of 14 per cent. per annum, less British income tax. The bank's investments stand in the books at less than market value at the 30th June last, and all other usual and necessary provisions have been made.

EDITORIAL.

SOUTH AFRICAN COMPANY LAW REFORM.

There has been something in the nature of a boom in new mining flotations of late, and while we would be the last to discourage enterprise, a word of warning may be necessary. As far back as January last some remarks in these columns regarding greater publicity for new flotations bore good fruit. The Johannesburg Stock Exchange passed a resolution to the effect that it would not grant an official quotation to the shares of any syndicate unless particulars of the undertaking were advertised beforehand for the information of the public. At the same time, of course, it must be remembered that the Committee of the Stock Exchange has no jurisdiction over new flotations as such, nor can they prevent members from dealing in any stock they like on the floor of the house. In regard to that they are in a different position from the Committee of the London Stock Exchange, which by refusing to give a fortnightly settlement to any share can effectually debar it from the house. All the local Stock Exchange Committee can do is to refuse to recognise dealings in any share for which a quotation, either official or unofficial, has not been obtained. The fact is that the trouble lies mainly with the divergent company laws of the four Provinces. The Transvaal Company Law is generally considered to be a fairly strong and useful measure designed to protect investors. One of its chief provisions is that the prospectus of any new issue must be lodged with, and approved by, the Registrar of Companies. But companies registered in the other Provinces escape this and other restrictions, with the consequence that most of the new companies and syndicates doing business here and drawing their capital from the Transvaal are registered elsewhere. The obvious remedy is the codification of the Company Laws of the four Provinces, and this is a reform the Chamber of Mines, the Associated Chambers of Commerce, and other public bodies have been urging for many years. It is understood that a uniform Company Law has actually been drafted for the Union, but has had to be held up with several other similar codifying Bills, owing to pressure of other Parliamentary work. The need for reform is brought again to our attention by the Government Mining Engineer in endorsing a protest from the Inspector of Mines at Bloemfontein on the subject. The latter is naturally alarmed at the flood of new companies registered recently in Bloemfontein under the laws of the Orange Free State. The law of the Province in question in respect of such registration is simplicity itself. Any seven or more persons associated for any lawful purpose may, by subscribing their names to a memorandum of association and otherwise complying with the law, form an incorporated company with limited liability. Practically all that is necessary in the articles of association is the name of the proposed company, the amount of capital divided into shares of fixed amount, and the locality of the registered office. For the rest, the chief requirements appear to be the payment of the fees and the putting up of a conspicuous plate at its place of business. Apart therefore from the requirement that the purpose of the company shall be apparently lawful, and that certain formal details shall be complied with, there is no restriction on any company being registered and thus obtaining the privilege of limited liability, whatever suspicions may be entertained as to the good faith of its promoters or the feasibility of its operations proving payable. It is not suggested for a moment that any company, wherever its proposed field of operations, is not perfectly entitled to take advantage of the ease and simplicity of registering under the Free State laws, especially if time can also be saved by so doing. Many excellent companies have done so. What is, however, objected to is that such a law can so easily be taken advantage of by companies the *bona fides* of which is not beyond suspicion. The G.M.E. opines that nothing less drastic will suffice than that the Minister of Justice should reserve full right, either by himself or through the Attorney-General or Registrar of Deeds of the Province concerned, to institute an inquiry into the circumstances and purposes of any company, and if not satisfied, to refuse the privilege of registration. For such an inquiry, the Minister would have at his disposal the advice of the Government's whole technical staff. There should be nothing obnoxious in the above provision from the company's point of view, as the most that could happen, in any ordinary case, would be that the directors might be called upon to substantiate, to reasonable satisfaction, any statement made in the published prospectus of the concern.

More Nissen Stamps for the Shamva.

At the Shamva Mines, the big low-grade gold property in Southern Rhodesia, it has been decided to install eight further Nissen stamps and to increase the reduction works in proportion at an estimated cost of £20,000. The expanded plant is expected to enable the milling of 56,000 tons monthly (against the current average rate of some 50,000 tons) to be done later on this year. The departure has been made in the hope in the first place of counteracting the recent increase in working costs. "The increased crushing capacity should (says the chairman of the company) diminish the working costs per ton, seeing that no extra staff will be required to run the extra stamps and, furthermore, we shall be creating an insurance against a gradual or permanent fall in the gold premium, which is a factor we cannot disregard."

* * * *

Position of Silver.

Messrs. Samuel Montagu & Co. in their weekly bullion circular state that the Indian bazaars seemed to have been seized with a metallic fever, for, beside the inquiry for gold, orders have been received this week for silver irrespective of such remittances being of a paying character at the Indian rates current. As a consequence prices here have been jumpy, even those at the higher figure quoted, and some American supplies have come on offer. The Continent has sold of late but sparingly. According to the *Tientsin Evening News* rich silver mines have been discovered in the Province of Kirin, between Tienpaoshan and the River Tumen. The construction of a light railway for the conveyance of the ores is proposed. The preference of the public for metallic money, not necessarily gold or silver, is exemplified by the fact that the new nickel money issued in France disappears as soon as it is issued.

* * * *

Premier Hydraulic Tin Mines of Nigeria.

At the statutory meeting of the members of the Premier Hydraulic Tin Mines of Nigeria, Ltd., held on July 27 at the offices of the company, 20 Copthall Avenue, London, E.C., Mr. Thomas J. Milner presided, and *inter alia* said: "You will be pleased to hear that Mr. J. Jervis Garrard (lately of the T.C.L.), who made the preliminary report on your property, has been appointed consulting engineer for your company. Mr. Garrard is at present in this country, and is actively engaged in placing orders for the machinery and plant required to work your property to the best advantage. He will be returning to Nigeria shortly in order to superintend the erection of the hydraulicing plant recommended by him. In this connection we have availed ourselves of the opportunity which presented itself of securing a portion of our plant from a mine in South Africa. This material we have been able to obtain on favourable terms, and its acquisition, as you will appreciate in these days of great difficulty in securing delivery of practically every description of machinery, will mean the saving of considerable time in reaching the stage at which your property can be worked on modern lines. We are producing a small quantity of tin by the usual calabashing methods, but our output is at present quite nominal, being influenced in some degree by the existing paucity of native labour."

SIEMENS BROTHERS
& CO., LIMITED

MANUFACTURERS OF

CABLES

AERIAL, UNDERGROUND, SUBMARINE.
Paper Insulated. Rubber Insulated.
Gutta-Percha Insulated.
Lead Covered. Armoured.

CABLE ACCESSORIES

Joint Boxes. Connection Boxes.
Service Boxes.
Insulating Compounds. Tapes.

TELEPHONES

Manual Exchanges. Automatic Exchanges.
Intercommunication Sets.
Loud-speaking Telephones. Portable Telephones.
Mining Telephones.

PRIMARY CELLS

Fluid and Dry.

WIRES

Rubber Covered. Gutta-Percha Covered.
Cotton Covered. Silk Covered.
Asbestos Covered. Enamelled.
Motor Car Leads.

TELEGRAPHS

Inkers. Sounders. Relays.
Keys, &c. Station Sets.
Fast-Speed Apparatus.

LINE MATERIAL

Tubular Poles. Lattice Poles.
Pole Structures.
Arms. Brackets. Insulators.

SIGNALLING APPARATUS

For RAILWAYS—
(Siemens's All-Electric Power System)
and for
SHIPS, MINES, POWER STATIONS.

Representative in South Africa.

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. BOX 239, CAPE TOWN.

Telephone 1202. **Telegrams: "SIEMENS"**

Important Discovery of Pure Crude Petroleum.

VAST POSSIBILITIES OF FIND—UNIQUE IN THE ANNALS OF SOUTH AFRICA—EXPERTS INTERESTED—COMPANY FLOATED TO EXPLOIT OCCURRENCE.

A DISCOVERY of pure crude petroleum, described by Messrs. Sydney Bilbrough & Co. as " unique in the annals of South Africa," has been made in Amersfoort district. A report dated August 23, signed by Messrs. Sydney Bilbrough & Co., on the samples from the property is as follows:

On the 10th inst., the sample of water submitted by Mr. J. N. Ross was duly examined, and the sediment or sludge in the water contained free petroleum. I then instructed him to bring me a larger sample of the sludge which floats down the stream from the fountain. He submitted this sample on the 18th inst., taken in the way I had asked him. The result was beyond expectation, and a considerable quantity of crude petroleum was extracted from the dried sludge.

The smell of the dried sludge and petroleum was very characteristic and strong. The two samples are open for your inspection at this laboratory. The sample of petroleum sludge was taken by Mr. Ross from a running stream or spring, and the sludge is being continually discharged with the flow of water.

The scarcity of rain during the past eight months doubtless accounts for this remarkable discovery, which, to my knowledge, is unique in the annals of South Africa. The oil was put through tests to distinguish it from animal or vegetable oils and it was proved to be pure crude petroleum—no animal or vegetable oil being present. The oil when cold set into a thick paste. I am for this reason of opinion that the oil is not a secondary distillation from oil shale.

Hence we have a thin stream of crude petroleum continually oozing into this fountain and flowing out with the water day and night throughout the year.

I have since looked into the geology of the surrounding country, and according to the best geological surveys available, the granite would not be struck till considerable depths had been reached. The strata above this granite consists of sandstone, grits and shales, and this is the formation in which oil wells in other parts of the world are found. To put a borehole through this formation would be cheap and rapid, and in any case the hole need not extend into the granite.

I have just brought to mind that a borehole was put down some miles from this locality and at a depth of about 300 feet. Natural gas was struck and given off so strongly that the borehole was abandoned. This hole was put down in search of water, but the striking of natural gas contaminated the water and thus it was not gone on with. You have, therefore, three sound reasons which, when linked together, give very strong evidence of the existence of crude petroleum.

1. The actual finding of crude petroleum which continually discharges from the earth through the fountain.

2. The general geological formation is suitable.

3. A borehole put down in the same formation some distance away struck natural gas, and petroleum is almost invariably accompanied by the presence of natural gas. I may say I analysed this natural gas at the time it was struck some ten years ago.

The name of the new company is the Union Petroleum Co., and it starts under the best of auspices. The initial working capital is £12,500, which has been considerably over-subscribed.

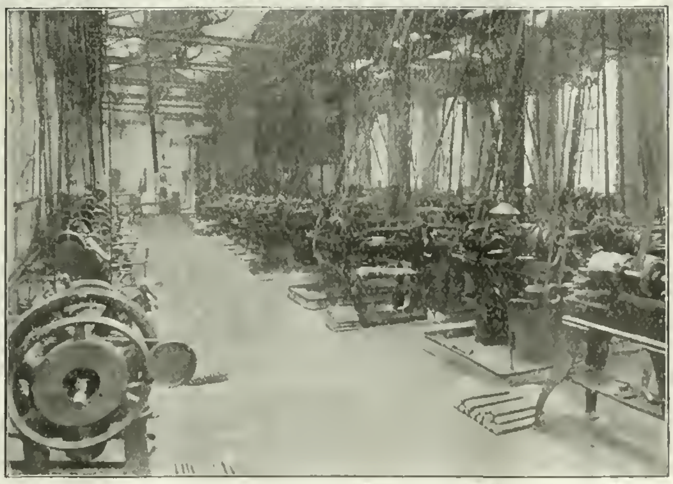
Swaziland Tin.

The following are the results of the operations of this company for the month of July: Concentrate recovered, 28 tons, 69·8 per cent. concentrates; estimated working profit (taking tin at £250 per ton), £1,960; add adjustments in respect of previous shipments, £1,052; net profit for month, £3,012.

* * * *

Metal Market Features.

At the metal market few features of interest occurred during the week. Business was small, and for that reason prices dropped, dealers adopting a waiting attitude. The consuming trades are very quiet. Lead advanced on fresh buying from America. Good supplies of lead are arriving, whilst it was reported from Australia that the strike at Broken Hill is in course of settlement. There was an eager demand for pig-iron, induced by the prospect of an early advance in prices, as supplies are scarce. As regards steel, the home demand is good, but it is stated that, owing to shortage of material, the Armstrong-Whitworth Company will, during the week-end, discharge 1,000 employees. A singular fact in connection with the steel industry in Germany is the continued suppression of all information concerning the number of blast furnaces in operation, tonnage, and production of pig-iron and steel throughout Germany.



PHONE 4673. BOX 3162

OSBORN'S

PATENT

"Daly" Tappets and
W. & S. Tube Mill Liner.

WRITE FOR DESCRIPTIVE BOOKLET.

Samuel Osborn (South Africa.), Ltd.,

SHEFFIELD AND JOHANNESBURG.

Government Report on African Oils.

MR. TREVOR FAVOURABLY IMPRESSED—IF SUCCESSFUL, A VERY LARGE INDUSTRY MAY RESULT—ESTIMATES OF PROFITS AND WORKING COSTS.

THE long-expected report by Mr. T. G. Trevor, Inspector of Mines for the Pretoria District, who was sent by the Mines Department to examine the African Oil property, has been issued in the official *Journal of Industries*. Mr. Trevor reviews the main facts regarding the property, already familiar to our readers, and sums up as follows:

The mining will be exactly similar to such coal mining as is done at the Illobane Colliery or at the Natal Ammonium, and at present prices should not cost more than 4s. per ton broken. As three tons will have to be broken, however, for each ton of shale won mining costs may be roughly estimated at 12s. per ton of shale hauled. There are no signs of any important faults or igneous intrusions on Kromhoek, where the main section of the property lies, and where it is intended to install the works. The idea is to work this section from a self-drainage drive put in up the dip from a transverse valley. This drive will develop about one square mile of ground, one side and two half sides of which are exposed in the outcrop cuttings, the shale in the interior of which has been tapped by two boreholes, and is claimed to be of equal quality with the outcrop. Allowing that the shale measured *in situ* gives 17·6 cubic feet to the ton, then the yield of shale would be 200 tons per inch per acre, or in the observed width of 24 in., say, 3,000,000 tons per square mile. It is, therefore, obvious that the quantity of shale on the property is more than enough to justify the erection of a modern plant. The working conditions are ideal. The bed, outcropping as it does about 200 feet above the terrace below, gives every facility for working entirely by gravitation. The locality is absolutely healthy, and there is water in abundance.

VALUE OF SHALE.

The actual distillation value of the shale is difficult to determine until a practical test on a working scale has been made. The results of eight samples and assays taken by the Central Mining and Investment Corporation, Ltd., gave on Kromhoek 25 gallons per ton from the upper shale and 14 gallons per ton from the lower shale, over a total width of 30 inches; while on Goedgevonden, the results of seven samples over an average width of 31 inches, 23·8 gallons were obtained from the upper shale and 18·1 gallons from the lower shale. On the other hand, the tests made on the property by Mr. Mills-Davies, the consulting engineer, I am assured, averaged over 30 gallons per ton over 21 inches—probably this difference was due to the lesser width taken by him. A bulk sample of 60 tons is now on its way to Glasgow for a practical test both for crude oil product and for refining. When the results of this are known detailed calculations as to the profits accruing from working the shale will be possible, but till then the following assumptions are, the author thinks, justifiable, though it must be understood that the distillation costs are merely assumed at double the pre-War Scottish price, the writer not having experience enough in this matter to estimate them:—Mining costs, 12s. per ton; distillation costs, 12s. per ton; total cost, £1 4s. per ton.

PRODUCT.

The author was informed on a recent visit to some by-product works in South Wales that the actual working of a by-product plant in South Wales gives a higher return than that obtained by laboratory tests. We are, therefore, justified for the present, pending the results of the Glasgow tests, in assuming a probable return of at least 25 gallons of crude oil per ton. What the value of this crude oil will be depends largely on the results of the fractional distillation tests, but at the present time it cannot well be less than 3s. per gallon, and this price is not likely to diminish, as the demand for oil is increasing every year, and the present sources of the world's supply appear to be incapable of keeping pace with requirements. The above costs and values leave us with a margin of profit of no less than approximately £2 10s. per ton. This will allow of a doubling of costs, which is improbable; or of a halving of values, which seems equally unlikely, and yet leave a margin of profit. Under these circumstances the author need hardly say that he is favourably impressed with the prospects of the venture. As similar shales are known to stretch intermittently from Mooifontein No. 287, in the Ermelo district, to the Impendhle, in Natal—a distance of not less than 200 miles along the outcrop—it is highly probable that if this oil corporation is successful a very large industry may result even along the outcrop, and later it may be found worth while to tap the shales by means of shafts over the main area of the high veld.

Tullis
LEATHER BELTING

THE best possible results can only be obtained from any type of machine when using the most suitable Belting.

"**Tullis**" **Belting** is made by the largest Belting Manufacturers in the world, with a reputation and experience extending over 80 years

It is absolutely reliable **under every condition** and in **all climates.**

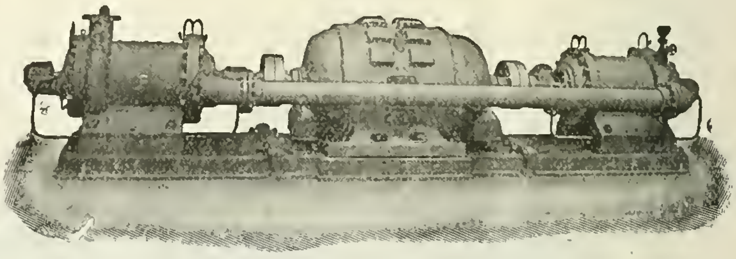
No matter the position of the Drive, there is a **Tullis Belt** made to meet the requirement.

Illustrated Catalogue on Application.

JOHN TULLIS & SON, LTD.,
BELTING SPECIALISTS,
ST. ANN'S WORKS,
GLASGOW, SCOTLAND.

JOHANNESBURG.
18, TROYE STREET.

SULZER
HIGH-LIFT CENTRIFUGAL
PUMPS.
For Mine Drainage, Waterworks, Etc.



Pumping Set suitable for lift of 2,500 ft.

LARGE LOCAL STOCKS IN
MEDIUM AND LOW-LIFT PUMPS.

For particulars apply to:
RICE, WILSON & HERD,
86, 87, 88, 96, Standard Bank Chambers, Commissioner St.
P.O. Box 930 Telephones 2299 & 2309. JOHANNESBURG.

Also South African Agents for
CALLENDER'S CABLE & CONSTRUCTION CO., LTD.
BRITISH THOMSON-HOUSTON CO., LTD., etc., etc.

The Latest Silver Lead Flotation.

EXCELLENT PROSPECTS FOR THE WORKING OF THE SHIMWELL BLOCK ON DWARSFONTEIN—MR. OLIVER KING'S REPORT.

FULL particulars are now available regarding the Pretoria Silver Lead flotation. The company is being established for the main purpose of acquiring from the vendor the mineral rights of portion of the farm Dwarsfontein No. 145, District Pretoria, in extent 723 morgen. The property has been examined by Mr. Oliver King, M.A.I.M.E., consulting engineer, upon whose technical recommendations the Transvaal Silver and Base Metals Company, Ltd., was floated, the share issue being over-subscribed eleven times. The vendor is Mr. A. J. Shimwell, and the consideration payable to him against transfer of the mineral rights is 15,000 fully paid shares in the company and £10,000 in cash. The promoter, Mr. Jas. H. Kelley (with whom Mr. C. A. O. Bain is jointly interested), receives 10,000 fully paid shares, and is paying the preliminary expenses connected with the flotation of the company, which will be refunded by the company on flotation. Fifty-five thousand shares are offered for subscription, have been guaranteed to be taken up at par, and in consideration therefor the guarantors receive an option for a period of twelve months from the date of the registration of the company to take up an equal number of shares in the company at 25s. per share. The subscribers of the 55,000 shares shall also receive an option for a period of twelve months to take up at 25s. per share a number of shares equal to the number subscribed for. The promoter shall receive an option over 5,000 shares on the same conditions. The directors of the company will be empowered to increase the share capital of the company in order to provide for the above options.

CONSULTING ENGINEER'S REPORT.

Mr. King has most carefully examined the property, and his report, which contains detailed particulars of sampling and is accompanied by plans and diagrams, may be inspected at any time. In the course of this report Mr. King gives a brief history of this mineral field, and shows the operations conducted on Dwarsfontein by the Transvaal Silver Mines in 1892-1895 disclosed results which would give very substantial profits on the present working costs and selling prices of metals. His calculations are on a very conservative basis. The average metallic contents of a series of argentiferous galena samples taken from the property were determined by Mr. Rex H. Rundle, metallurgical chemist and assayer, to be 31 per cent. of lead and 39 ozs. of silver per ton of 2,240 lbs. Mr. King mentions that the Shimwell lode, which is the principal lode on the property, is mentioned in the earliest known report by W. H. Furlonge, who speaks of it as the most promising in the district, and says that at a depth of 55 feet he estimates the value of the lode as 40 cent. lead and 50 ozs. silver over 30 inches. Mr. King refers to the workings made by Mr. Shimwell over a length of about 600 feet, from which he took a series of samples which average, over 32 inches, lead 27·1 per cent., silver 32·8 ozs. per long ton. At present values this ore is worth about £18 per long ton. He next gives assays of two samples of hand picked ore which are as follow: Lead, 77·3 per cent.; silver, 130·2 ozs.; value, £59 per long ton. Lead, 66·2 per cent.; silver, 80·9 ozs.; value, £43 per long ton. Regarding the other lode, known as the Brakfontein lode, he gives the average width as 31 inches and the assay he took gave: Lead, 10·33 per cent.; silver, 13·05 ozs.; and zinc, 8 per cent. Of this lode he says it is strongly developed and clearly traceable from the adjoining farm Brakfontein to Dwarsfontein, where certain outcrops of lode matter are in the direct extension, and he is fully of opinion that these exposures are a direct extension of the Brakfontein lode. In the Transvaal Silver Mines the lode is proved to a vertical depth of 330 feet, and Mr. King thinks there is no risk in assuming that the Shimwell lode goes to an equal depth, and that each level of the mine calculated at only 3 feet wide would give about 150,000 tons per level. Although calculated only to a depth of 330 feet (the known depth) there is no geological reason why the lode should cease at that or any other depth. Mr. King outlines a scheme of development and production in stages, and thinks that the mine developed and equipped to put out 100 tons per day would yield on present metal prices a product worth £724, and after deducting cost of smelting, a working profit per working day of £324. In summing up his report Mr. King writes: "The areas have been shown to embrace (1) a strike length of 6,650 feet on the Shimwell lode, of which 1,550 feet must be looked on as a deep level area; (2) an unexplored length of over 5,000 feet on the extension of the Brakfontein lode, with very considerable possibilities, and (3) the likelihood of other fissure lodes being found on the areas in the course of time. Immediate interest centres in the 3,000 feet on the Shimwell lode on the south-east. The long and powerful strike of this lode at surface augurs well for considerable persistence in depth. As regards mineral value the evidence is based on the lode exposures on the area, and on past records and experience of this and other properties in the neighbourhood. Given ample working capital, I feel assured of the success of the proposition, but would urge wide development as a necessity owing to the greatly varying values of the lode from point to point."

CAPITAL AND DIVIDEND PROSPECTS.

The capital of the company has been kept within modest limits, but the financial scheme will admit of bringing the property to a sound producing stage, and it is confidently anticipated that substantial dividends will be earned. All the information available points to the likelihood of the prices of silver and lead being at least maintained for some considerable time to come, but, in Mr. King's opinion, the margin of payability is so wide that it would be possible to carry on profitable operations at less than half current quotations. Applications must be in the office of the secretaries on the 10th inst.—*not* in the post.

Cape Asbestos.

A substantial increase in the profits of the Cape Asbestos Company has been registered during the past year. The profit available for distribution has risen by £7,179, to £26,504. In view of this the ordinary dividend is increased from 6 to 10 per cent., and an equivalent dividend is to be paid on the preference shares under the terms of issue dated December 15, 1910. A sum of £5,000 is again transferred to reserve, raising that fund to £40,000, and the carry-forward at £9,393 is £3,319 more than brought into the accounts. The new factory at Barking has been fully engaged during the year, and the demand for the company's manufactured goods has been well maintained. In order to strengthen the future position of the concern, many additional agencies have been established both at home and abroad.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; in subject passes 7 to 1. Our passes have attained 100%,

Overseers.—19 Certificates out of the last 22 (3½ months) granted in S.A. Our passes during a recent 6 months (1919/20) were 95%

Surveyors—The only Certificate in South Africa. March 1920; 4 passes (3 conditional) in July, 1920. Over 60 successful candidates have received sectional or other tuition from us,

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

HEAD, WRIGHTSON & Co., Ltd.,

ENGLAND,

Manufacturers of all Classes of

COLLIERY PLANT.

SCREENING PLANT STRUCTURE

Headgears and Coal Screening Plants.

MAKERS OF

- Headgears.
- Headgear Sheaves.
- Cages.
- Kep Gears.
- Stephen Humble Safety Hooks.
- Friction Driven Tipplers.
- Jigging Screens.
- Marcus Screens and Conveyors, etc., etc.

"NOTA-NOS" COAL WASHER INSTALLATION

MAKERS OF

- Plate Picking Belts.
- Deflecting Jibs.
- Raising & Lowering Gears.
- Scraper Conveyers.
- Bar Picking Belts.
- Elevators.
- Creepers.
- Rotary Screens.
- Band Conveyors, etc., etc.

COAL WASHING PLANTS.

Designs prepared and estimates submitted by

HEAD, WRIGHTSON & CO. (SOUTH AFRICA) LTD.,

47-48, Standard Bank Chambers, Johannesburg.

Mining Leases on the Far East Rand: Inspector's Report.

MR. J. H. TWIDDY GIVES HIS VIEWS ON THE DEVELOPMENT OF THE SPRINGS, BRAKPAN, WEST SPRINGS, STATE AREAS AND NEW STATES.

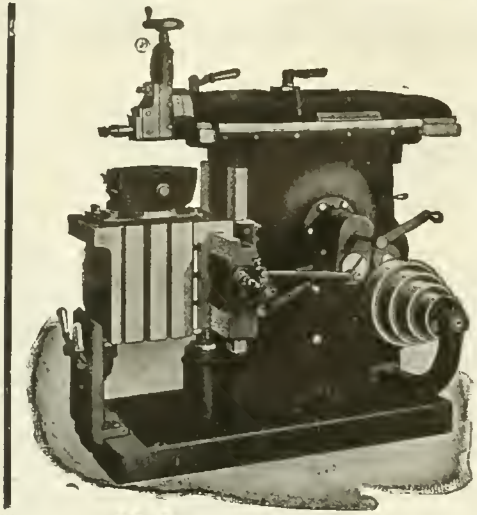
In his report for the quarter ended 30th June, 1920, on Brakpan Mines, Ltd., Mr. J. H. Twiddy writes, *inter alia:* The payable ore reserves as at the 30th June, 1920, are estimated by the company at 2,482,098 tons, of an average value of 8·88 dwts. over a stoping width of 70·01 inches. These figures indicate an increase of 2,019 tons compared with the previous estimate as at the 31st December, 1919, when the value and width were 8·74 dwts. over 70·00 inches. It should be noted that the pay limit has been raised from 4½ dwts. to 5 dwts., and this has had the effect of excluding 83,539 tons between the values of 4·5 dwts. and 5 dwts., which would otherwise have been included in the payable ore reserves. In No. 3 circular shaft the footage sunk amounted to 329 feet, and the footage ringed to 345 feet, the total depth of the shaft being 3,039 feet, of which 3,006 feet are lined or ringed. The footage sunk represents a decrease of 91 feet compared with the previous quarter, the rate of sinking having been considerably below the average owing to delays caused through an overwind and also to the disturbed nature of the ground sunk through necessitating closer ringing of a portion of the shaft. The shaft is at present in the amygdaloidal diabase. In No. 4 circular shaft the footage amounted to 358 feet and the footage ringed to 360 feet, the total depth of the shaft being 3,330 feet, of which 3,261 feet are lined or ringed. The shaft is now in the quartzites underlying the amygdaloidal diabase. Compared with the previous quarter there has been a decrease of 127 feet in the footage sunk, the rate of progress having been interfered with through the carrying out of necessary alterations and adjustments in connection with the plant.

A summary of the development work is as follows:—Drives, 1,743 ft.; winzes and raises, 1,061 ft.; haulage-ways, 1,122 ft.; crosscuts, etc., 71 ft.; total, 3,997 ft.; footage on reef, 2,844 ft.; footage sampled, 2,835 ft.; footage payable, 1,375 ft., equal to 49 per cent.; average reef channel width payable footage, 40 in.; average reef channel value payable footage, 14·2 dwts. Compared with the previous quarter there has been a decrease in the footage developed of 205 ft. and a decrease in the footage sampled of 35 feet. The payable percentage of the footage sampled remains the same, whilst the average value was decreased from 602 inch-dwts. to 572 inch-dwts. The main incline south has been sunk through the dyke and is now on reef.

Compared with the previous quarter there has been a decrease in tonnage broken of 20,607 tons, caused by the mine being shut down for five days during April owing to a strike of the underground workers. The average value of the ore mined from the payable ore reserves was 0·6 dwt. lower. The average value and width of ore mined from payable reserves according to data adopted in the estimation of reserves as at the 31st December, 1919, were 8·87 dwts. over 68·35 inches, whilst the payable ore reserves as a whole at that date averaged 8·74 dwts. over 69·96 inches. During the six months January to June the actual channel and stoping widths in the payable ore reserves have averaged out at practically the widths estimated, so that the external waste mined was not more than allowed for.

In his report for the quarter ended 30th June, 1920, on Springs Mines, Ltd., Mr. Twiddy writes: The ore reserves as at the 30th June, 1920, are estimated by the company at 2,569,207 tons, of an average value of 8·75 dwts. over a stoping width of 63·16 inches. These figures indicate an increase of 151,909 tons compared with the previous estimate as at the 31st December, 1919, when the value and width were 8·74 dwts. over 62·92 inches. In No. 3 shaft the footage amounted to 509 feet, and the footage timbered to 494 feet, the total depth of the shaft being 3,649 feet, of which 3,607 feet are timbered. Compared with the previous quarter there has been an increase in footage sunk of 3 feet and a decrease in footage timbered of 15 feet. The contact of the Main Reef with the footwall shales was intersected at 3,466 feet. The reef occurred in several bands and the value averaged 0·3 dwt. over a reef channel width of 61 inches. A hanging wall leader was also struck at 3,411 feet, averaging 1·1 dwts. over 10 inches. No. 4 shaft has been sunk to the sandstone and to a total depth of 48 feet, of which 30 feet are timbered. The shaft is being lined with concrete between the sandstone and the collar sett. Compared with the previous quarter there has been a decrease in the footage developed of 214 feet, and an increase in footage sampled of 670 feet, whilst the payable footage has increased from 50·35 per cent. to 59·52 per cent. The average value has fallen slightly from 566 inch-dwts. to 548 inch-dwts. A strike of several days took place towards the end of May amongst the developers, as the result of a dispute, and this naturally retarded progress. Compared with the previous quarter there has been a decrease in the tonnage mined of 8,879 tons and an increase in value of 0·84 dwt. The tonnage output was detrimentally affected by a four-days' strike of the stopers at the commencement of June, who came out in sympathy with the developers. The average value and width of ore mined from the payable reserves according to data adopted in the estimation of reserves as at the 31st December, 1919, were 8·84 dwts. over 65·31 inches, while the payable reserves as a whole at that date averaged 8·74 dwts. over 62·92 inches. The value of the ore mined from the payable reserves after adjustment for the width stoped was 0·6 dwt. higher than its corresponding block value. During the six months January to June the external waste width carried in the payable ore reserves averaged 1·25 inches greater than was estimated.

In his report for the quarter ended the 30th June, 1920, on the Government Gold Mining Areas (Modderfontein) Consolidated, Ltd., Mr. Twiddy writes:—Compared with the previous quarter there has been an increase in the total footage developed of 2,322 feet and in the total footage sampled of 1,010 feet, but the above footages for the previous quarter were below their averages and the present quarter's development is about normal. The distribution of the development over the four shafts shows an increase in the percentages carried out at the north-west and south-east shafts and a decrease at the north-east and south-west shafts compared with the previous quarter. The quarter's development shows an improvement both in the percentage of payability and in the value, the percentage payable having increased from 58 per cent. for the previous quarter to 73 per cent., whilst the average value of the payable footage has increased from 831 inch-dwts. to 859 inch-dwts. Mining: Rock broken in mine, 451,162 tons; taken from broken ore reserves, 1,353 tons; total tonnage handled in mine, 452,515 tons. In addition to the above total there were 4,903 tons of development rock sent direct to the dump. The average value and width of the ore mined from the payable reserves, according to data adopted in the estimation of reserves as at the 31st December, 1919, were 8·37 dwts. over 77·7 inches, whilst the payable reserves as a whole at that date averaged 8·66 dwts. over 76·6 inches. The value of the ore mined during the quarter from the payable reserves after adjustment for the width stoped was 0·16 dwt. below the estimated book value. Compared with the previous quarter there has been an increase in tonnage



STEPTOE SHAPERS AND MILLERS

Seventy-five years of experience in the manufacture of high grade machine tools with thousands of our machines in shops all over the world giving daily satisfaction are recommendations that you should not overlook in the selection of your equipment.

Send for a copy of our catalogue showing our entire ine of Shapers and Millers, also complete specifications, prices, etc.

Steptoe Shapers can be supplied with cone drive, single pulley drive or motor drive. Each machine before leaving the factory is thoroughly tested by corps of inspectors.

SOLE SOUTH AFRICAN AGENTS FOR
The John Steptoe Co., Cincinnati, Ohio, U.S.A.

BARTLE & COMPANY, LTD.,
P.O. BOX 2466. PHONE 3553 WIRES "FAGGOT"
LOVEDAY HOUSE —— JOHANNESBURG.

milled of 34,500 tons and an increase in gold obtained of 10,349 ozs. The tonnage milled during the quarter practically represents the milling capacity of the plant calculated on the actual number of working days, and it is the first quarterly period over which this result has been achieved.

In his report for the quarter ended the 30th June, 1920, on Modderfontein East, Ltd., Mr. Twiddy writes:—The ore reserves have been re-estimated by the company as at the end of June. The total reserve tonnage as at that date amounted to 1,755,400 tons, of an average value of 7·75 dwts. over a stoping width of 55·3 inches. Approximately two-thirds of this tonnage is situated in close proximity to the No. 1 main incline and vertical shafts, and is well developed for purposes of attack. The minimum value of the blocks of ore forming the reserve is 5 dwts., with the exception of 86,800 tons of an average block value of 4·7 dwts. Compared with the previous estimate, as at the 31st March last, the reserves show an increase of 202,600 tons, and the average value has improved from 7·57 dwts. to 7·75 dwts., the estimated stoping width remaining the same. Owing to the fluctuation in the gold premium, together with the uncertainty of estimating working costs, it is impossible to adopt a minimum pay limit when calculating the tonnage of payable ore reserves, and the practice of estimating the tonnage on the basis of the normal or pre-War price of gold is still followed. It would appear to be usual on the Rand when estimating these tonnages to include blocks of ore of a recovery value at the normal price of gold below the average current cost of working, and this practice has not been departed from by the Modderfontein East, Ltd., in the calculation of the present published ore reserve tonnage, as a considerable proportion of that tonnage, if worked under these restrictions as to price of gold and working costs, would result in loss. Ore reserve tonnages published by mining companies are defined in many instances as simply "ore reserves," there being no mention of the word "payable," but I think that the published figures under this definition are taken to signify the *payable* reserve tonnage; or, in other words, the tonnage which would yield sufficient gold at its normal value to meet the average working costs at time of estimating those reserves. It is recognised that ore of a recovery value below current working costs may be profitable to work when the mill cannot be supplied to its full capacity with admittedly payable ore, or towards the end of the life of a mine when development costs cease and the mining largely consists of reclamation and is more cheaply carried out. However, it would be more desirable and would lead to no misunderstanding if reserve tonnages and values were given in some concise classified form and not merely as a total with its average value. Compared with the previous quarter there has been a decrease in the total footage of 2,075 feet, and in the footage sampled of 1,870 feet, the decrease being due to a portion of the labour force and compressed air supply being diverted to preliminary stoping requirements. The percentage of payability remained about the same as for last quarter, but the average value increased from 382 inch-dwts. to 632 inch-dwts. This increase is due to improvement in the values met with in the Nos. 1 and 2 shafts, the values in the No. 3 shaft having fallen off somewhat. The connection between the Nos. 1 and 2 shafts was made early in May, permitting of stoping operations being commenced. Milling operations were commenced at the Apex reduction plant on the 23rd April. The capacity of this plant is 27,000 tons per month. During the first two to three weeks only development and dump rock was sent to the mill, until the connection between Nos. 1 and 2 shafts was completed, allowing of stoping operations being carried out. Owing to difficulties and delays connected with the restarting up of a plant, and, moreover, to the absorption of gold which at first takes place, the following figures of the results obtained for the first few weeks' operations should not be accepted as representative of what the average results are likely to be when both the mine and reduction plant get into full swing.

In his report for the quarter ended the 30th June, 1920, on New State Areas, Ltd., Mr. Twiddy writes:—North shaft: The footage amounted to 720 feet, the total depth being 2,439 feet. The shaft is timbered to approximately 25 feet of the bottom. Compared with the previous quarter, there has been an increase in the footage sunk of 66 feet. The Kimberley shales were encountered at a depth of 2,041 feet. The shaft bottom is now in quartzite. South shaft: The footage sunk amounted to 750 feet, the total depth being 2,914 feet. The shaft is timbered to approximately 25 feet of the bottom. Compared with the previous quarter there has been an increase of 27 feet in the footage sunk. The Kimberley shales were encountered at a depth of 2,245 feet. The shaft bottom is now in the amygdaloidal diabase. The rate of sinking at both shafts during the quarter has been very satisfactory.

In his report for the quarter ended the 30th June, 1920, on West Springs, Ltd., Mr. Twiddy writes:—No. 1 shaft: The footage sunk and timbered amounted to 698 feet, the depth being 2,320 feet, of which 2,296 feet are timbered. Compared with the previous quarter there has been an increase of 58 feet in the footage sunk and 52 feet in the footage timbered. The shaft bottom is in the Kimberley shales, which were entered at a depth of 2,224 feet. The cutting of a pump station was commenced at 2,100 feet and advanced 21 feet from the timbers. Ten bands of reef were intersected during the quarter's sinking, one of which had a value of 4·5 dwts. over 6 inches, the remaining nine being all of a value lower than 1·2 dwts., with widths varying from 6 inches to 168 inches. No. 2 shaft: The footage sunk amounted to 462 feet and the footage timbered to 459 feet, the total depth of the shaft being 1,491 feet, of which 1,469 feet are timbered. Compared with the previous quarter there has been an increase of 24 feet in the footage sunk and an increase of 13 feet in the footage timbered. The shaft has been sunk in quartzite throughout the quarter. Three reefs were intersected at various depths carrying traces of gold only, the widths being 50 inches, 9 inches, and 74 inches. A large hoist being erected at this shaft is now practically completed and should be shortly in commission.

The Position in the Tin Mining Industry.

THE PRINCIPAL PRODUCING COUNTRIES—AN OPEN MARKET—THE SHARE OF SOUTH AFRICA.

In view of the prominent place which tin occupies in the public mind to-day, partly as the result of the Cornish situation, a timely leader upon the subject of "Tin Supplies and Possibilities," appearing in the current issue of *The Metal World*, is of general interest. The article, which quotes Mr. Frank Merricks, C.B.E., states that about one-half of the world's supplies of tin are mined in the British Empire, while, in addition, a considerable amount of the crude tin and ore from other countries is refined under the British flag. After reviewing the world's sources of supply, the article concludes in optimistic strain, suggesting that the recuperative powers of the metal are by no means exhausted in spite of recent advances in price.

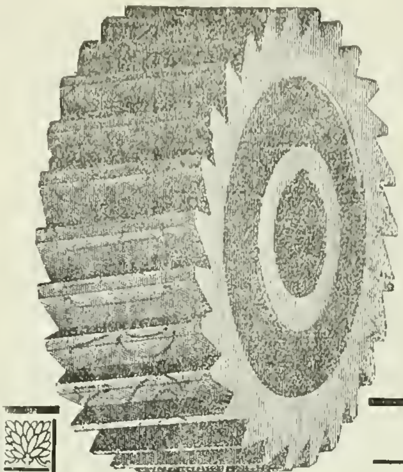
Since 1891 the chief tin-producing country has been the Federated Malay States. The other tin-producing countries of the Empire are: Cornwall, Nigeria, Australia, and South Africa. Of foreign producers, Bolivia, the islands of Banca and Billiton in the Netherlands, East Indies, Siam, and China are the chief.

Previous to 1891 the tin output of the Empire was confined to Australia, British Malaya, and Cornwall, the value of the Australian production being £9,879,539, while that of British Malaya was estimated at £5,400,000. The value of the Nigerian output, however, is now becoming important, and to-day exceeds that of Australia. At the same time the output of tin in British Malaya has fallen during the last few years, and in 1919 amounted to only 36,867 tons, as against nearly 50,000 tons in 1914. Simultaneously tin production in Bolivia, Siam, and China has increased, so that the proportion of the world's tin supplies produced in the British Empire latterly shows a decrease. The Empire's tin output, however, is still more than ample for her own needs, and must also be drawn upon by other countries that are large users of the metal. Singapore possesses the largest tin-smelting plant in the world, this belonging to the Straits Trading Co. Here most of the tin mined in British Malaya is refined, as well as ore shipped to Singapore from Siam, the Netherlands, East Indies, South Africa, and Australia. Consequently, the export of tin from Singapore is much greater than the actual production of British Malaya.

Although, says *The Metal World*, the existence of tin in Nigeria was known to Europeans as far back as 1885, it was not until 1903 that an official mineral survey was undertaken, while tin mining was started in 1906, and the first exports of tin concentrates were made in 1907. From this date the tin industry developed rapidly, and in 1918 there were 82 tin-mining companies operating in the northern provinces of Nigeria. The highest recorded export tonnage for any one year was in 1917, when 9,966 long tons of ore were exported. Tasmania is the largest producer of tin in the the Australian fields, with New South Wales and Queensland next in order. In New South Wales a large proportion of the output is secured by dredging operations.

Bolivia, the second largest tin-producing country in the world, before the War sent part of her tin concentrate for smelting to Germany and part to the United Kingdom. In 1919, however, over 27,000 tons of tin ore were imported into Great Britain from South America, whose normal average output is about 23,000 tons. Other foreign tin-producing countries where an increase in output is taking place are: Siam with 8,300 tons yearly (smelted in Singapore), and China, whose chief centre of production of crude tin furnishes supplies to Hong Kong, where refining takes place.

The Metal World, in conclusion, hopes that no measures will be resorted to that would interfere radically with a free open market for tin or lead to the accumulation of a threatened unshipped surplus. It points out that the tin-plate industry in Wales is still "in a parlous state," which, however, may be considered as merely a temporary restraining influence as far as the home trade is concerned. Otherwise the trade outlook is fairly promising, while there are prospects of a continued good American consumption.



MILLING
CUTTERS
THAT CUT
"BETTER"

SaBeN
MILLING
CUTTERS

are made from SaBeN High Speed Sheffield Steel. They are made for all purposes and are especially suitable for Involute or Gear Cutters, in which great accuracy of form and long life are necessary. There is a manufacturing experience of nearly a century and a half behind all SaBeN products, and the excellent finish and superior cutting edge of these SaBeN Milling Cutters have made them well known and well liked the world over. If you are looking for greater efficiency, savings on final costs and lasting all-round satisfaction, then you are probably looking for SaBeN Milling Cutters. Why not make comparisons?

MADE BY
SANDERSON, BROTHERS
& NEWBOULD LIMITED
OF SHEFFIELD

SOLE AGENTS FOR SOUTH AFRICA:
BARTLE & CO., LTD.,
Box 2466. Phone 3553. Wires: "FAGGOT."
LOVEDAY HOUSE JOHANNESBURG.

M.J. 4

Project to Stop Diamond Rushes.

BOARD OF CONTROL EVOLVES SCHEME TO OPEN NEW FIELDS ON A BETTER BASIS— THE LOTTERY PLAN.

An aspect of the "rush" which has exercised the minds of the Department of Mines, the officials who have to control operations, as well as the individual diggers, in the carrying out of the work of establishing a new alluvial area, is the almost insuperable difficulties presented by a vast crowd of prospective diggers participating in a "rush" for an area which in its limitations must to many necessarily end in disappointment. Attention of late has been devoted to the work of propounding a scheme by which these risks and disappointments could be eliminated, and the recently appointed Board of Control has now formulated a set of regulations for the pegging of new areas which it is hoped will be adopted by the Mines Department.

Briefly the scheme is as follows. Holders of diggers' certificates who have been carrying on digging operations under their personal supervision, whether on Government ground or on private estates, for at least six months during the calendar year immediately preceding the proclamation of a new area, shall be entitled to apply for claims and participate in the ballot as hereinafter described. Applications for claims shall be by letter through the post, accompanied by two shillings and sixpence to cover expense of surveying, and must reach the office of the Inspector of Claims at least fourteen days before the date of the reading of the proclamation. The names of all applicants for claims shall be posted up at the office of the Inspector of Claims for a period of ten days before the date fixed for the reading of the proclamation, and two copies shall be supplied to each diggers' committee for the information of the diggers in their respective areas. The diggers' committee nearest the area to be proclaimed shall have the right to appoint three diggers, who, with the Inspector of Claims or his representative, shall select the portion or portions of the said area which in their opinion offers the best prospects of success. A surveyor appointed by the Government shall then survey and mark off the ground in numbered claims duly indicated by conspicuous pegs, and a plan of such claims shall be exhibited in the office of the Inspector of Claims seven days prior to the date of proclamation. The Committee appointed shall also select and reserve sites for police camps, stores, residential sites and camp reservations, locations, churches, schools, hospitals, public conveniences, and any requirements considered by them in the public interests. On the day of the reading of the proclamation and immediately following it, the names of all the diggers whose names have been approved shall be placed in a covered urn or other covered receptacle, whilst the numbers of the surveyed and marked off claims shall be placed in a like manner in another covered urn. As the name is drawn from one urn a number is drawn from the other, and this system shall form the method of allotting claims. The Inspector shall preside and three diggers shall assist in the ballot. No pegging of claims shall be permitted on the day of proclamation, but the ground thus proclaimed, other than the claims ballotted for, shall be open for pegging after sunrise on the following day and thereafter. No diggers' certificates shall be issued on the day of the reading of the proclamation. For the following and succeeding days of pegging on the proclaimed area diggers' certificates shall only be issued from the office of the Inspector of Claims to persons whose names have been posted up for the regulation period of seven days under the provisions of Act No. 15 of 1919, and posted up on a notice board outside the office of the Inspector of Claims. In all other respects the existing laws and regulations governing alluvial diggings shall have force.

THE
STRAITS TRADING COMPANY
LIMITED.

HEAD OFFICE Singapore
STRAITS SETTLEMENTS.

AGENTS IN SOUTH AFRICA:—
THE STANDARD BANK OF SOUTH AFRICA, LIMITED,
COMMISSIONER STREET, JOHANNESBURG.

PURCHASERS OF
TIN ORE CONCENTRATES OF ALL GRADES
FROM ALL PARTS OF THE WORLD.

SMELTING WORKS SINGAPORE & PENANG.

Address enquiries and samples to The South African Agents, or direct to:—
THE STRAITS TRADING CO., LTD.,
ORE BUYING DEPARTMENT,
SINGAPORE.

Men Favour Amalgamation of Mine Benefit Societies

Mr. Ernest Shaw, secretary of the scheme for the amalgamation of the mine benefit societies, reports the result of the recent ballot taken on mines on the question of amalgamation. The result is that societies representing 13,503 employees have voted for amalgamation, and societies representing 6,972 employees have voted against, and no returns have been received from societies representing 1,264 employees.

In the Chamber of Mines' scheme 60 per cent. of employees were required to agree to amalgamation before it could be carried into effect. The result of the ballot shows that more than that percentage are in favour. It is expected that a conference with representatives of the Chamber of Mines will take place early next week with delegates who have been appointed by the representative societies agreeing to amalgamation. The figures of the ballot are as follow:

SOCIETIES IN FAVOUR.

	No. of White Employes in Service. Mar.,1920	Ballot. For.	Ballot. Agst.
Cons. Langlaagte	369	297	4
Village Main Reef (meeting unanimous)	190		
Robinson Deep	677	243	175
Modder East (meeting unanimous)	278		
New Unified	88	64	11
Geldenhuis Deep	570	287	85
Kleinfontein Group (including New Kleinfontein, Apex Coal, Kleinfontein Power Association, and Van Ryn Deep)	1,028	476	98
Randfontein Central Estates	1,656	766	418
Van Ryn Estate	303	256	15
Durban Roodepoort Deep	384	171	17
Glencairn (meeting unanimous, number employes not given).			
New Goch (meeting unanimous)	165		
Geduld	391	291	34
Luipaardsvlei Estates	213	127	4
City and Suburban	296	208	4
West Springs	102	85	2
Langlaagte Estate	410	266	33
New Primrose	141	130	1
Brakpan	598	351	45
Modder Deep	286	120	4
Daggafontein	142	75	6
Witwatersrand (Knights)	322	136	57
Wit. Deep and Knights Central	1,030	386	38
Rose Deep (meeting in favour)	508		
New Modder	812	338	211
Consolidated Main Reef	629	359	49
Aurora West (meeting in favour)	143		
City Deep	730	550	58
Simmer and Jack	605	315	23
Robinson	437	179	152
	13.503	6.476	1,543

SOCIETIES AGAINST.

E.R.P.M. (no vote taken)	1,729		
Ferreira Deep (two-thirds majority required)	415	98	90
Wolhuter (meeting against)	292		
Modder B (no meeting)	595		
Govt. Areas (result not received)	976		
Crown Mines	1,823	755	778
Springs Mines (advised against)	557		
Village Deep (meeting against)	585		
	6,972	853	868

NO RETURNS.

Meyer and Charlton	131
Nourse Mines	547
Roodepoort United	226
West Rand Consolidated	360
	1,264

The New Currency.

In an article headed "All is not gold that glitters," the native newspaper *Umteteli wa Bantu* informs its readers of the proposed replacement of gold coinage by banknotes issued by the Government, which will, however, be guaranteed by the possession of gold to equal value kept in the Government strong rooms, and warns them against possible and even probable spurious imitations of the notes, which schelms may place in circulation among them. It also warns them of probable attempts by the same class of schelms to supply them with schlenter gold coins in exchange for the banknotes. The same warnings might be addressed to the white population also.

TO LET ON TRIBUTE.

VIKING & CROWN MINES.

FOR PERMISSION TO EXAMINE,
APPLY :-
P. ZAFFERE,
ALPES MINES,
SALISBURY,
RHODESIA.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office
BARSDORF'S BUILDINGS
MARSHALL STREET,
Box 4047. Telegrams: "Thaine."
JOHANNESBURG.

THOMAS BARLOW & SONS,

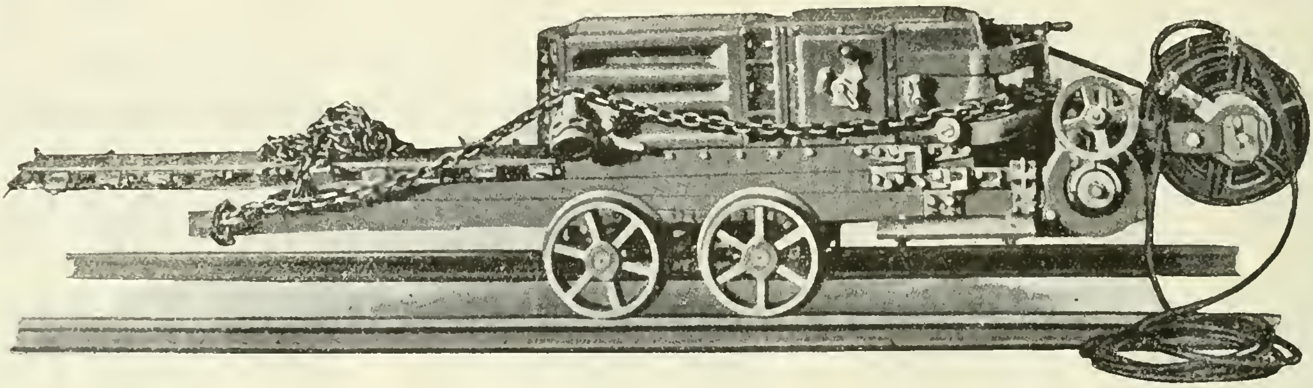
(S. A.) LIMITED.

Telegraphic Address: "SHIPMENTS."
Telephones 2460 and 2322.
Hulston's Buildings,
Smith Street,
DURBAN.

Telegraphic Address: "SHIPMENTS."
Telephone 6503.
28-29 Oceana Buildings,
Simmonds Street,
JOHANNESBURG.

SOLE AGENTS IN SOUTH AFRICA FOR

THE SULLIVAN MACHINERY COY.



Sullivan Alternating Current Ironclad "C.E.-7," on Self-propelling Truck.

We have supplied Sullivan Electric
Chain Coal Cutters to:--

- Witbank Collieries.
- Tweefontein United.
- Oogies.
- Middelburg Coal Co.
- Transvaal and Delagoa Bay Collieries.
- Elandslaagte.
- Newcastle Colliery.
- Natal Steam.
- Durban Navigation Coy.
- Tendega Colliery.
- Buffalo Collieries.
- Natal Navigation Collieries.

A Big Power Scheme for the Diamond Fields!

PROJECT TO TRANSMIT POWER 300 MILES FROM KROONSTAD TO KIMBERLEY TO SUPPLY DIAMOND MINES AND OTHER INDUSTRIES.

KIMBERLEY and its surrounding mines have long attracted the interest of engineers as a centre for the consumption of a cheap power supply, and the Government Inspector of Machinery for the district in his last annual report says he believes that a scheme is on the tapis to erect a power station at the Kroonstad Colliery, and transmit the electric power generated there through the O F.S., by way of Boshof, Koffiefontein and Jagersfontein. A line, either direct or branch, will, of course, come to Kimberley. This scheme, if decided upon, will have far-reaching effects in the industrial development of a huge tract of country at present almost entirely devoted to pastoral pursuits. Cheap power, whenever available, never fails to act as an incentive to the development and industrial expansion of any place enjoying it. Over a year ago a Kroonstad Colliery electric power scheme was suggested, which was then ridiculed by the man who is now doing his utmost to have it carried out. It must be obvious to any one conversant with the great potentialities of a supply of cheap power in the development of industries that such a scheme, if adopted, will give great impetus to many industries unthought of at the present time. Such a scheme is of first importance to the Kroonstad Colliery Company, whose product, as a steam coal, is of low quality, and therefore cannot hope to compete in the open market with the higher class coal of the country except at points at and close to the mine. The scheme is capable of expansion, and would, it is thought, be a strong factor, if developed to its full capacity, in liberating much of the latent wealth of this district. There is a plentiful supply of good water available within five miles of the mine, a weir across the Vaal being all that is necessary to ensure the supply of that essential commodity being permanent. From its inception the financial success of the scheme is assured. De Beers Consolidated Mines, Ltd., even on that company's present electric requirements, would consume approximately 8,000 kw. New Jagersfontein would require almost as much, as cheap power would be a strong incentive to that company to centralize on a direct-treatment plant to deal with the whole of the ground mined. Koffiefontein Diamond Mine, Blaauwbosch Diamonds, New Eland Diamonds, Roberts Victor Diamonds and Kimberley Waterworks, all on the route, would, it is thought, require approximately 2,000 kw. to satisfy their requirements. An electric railway from Koffiefontein to Fourteen Streams or Vierfontein would be brought within the range of possibility were such a scheme as that under consideration an accomplished fact. To further elaborate this proposition and its possibilities for the future, it might easily prove the deciding factor of the establishment of an iron industry at or near Postmasburg. If that came to pass, it would in its stride supply power to the Frank Smith Diamond Mines. The Makganyene Diamond Syndicate could also be supplied, and possibly some of the small asbestos ventures near which it would pass. The extraction of nitrogen from the air for agricultural purposes could also be undertaken, if for no other reason than to stabilize the load and extend the peak over 24 hours. It is known that there is a great demand for nitrogen throughout the world, and if produced by means of the surplus power the local supply would be assured at a price as low as that possible from any other source. The potentialities of such a scheme are so vast that to outline all the benefits that would accrue to the country by its adoption is more than one is prepared to attempt here. The approximate distance of transmission lines from the generating station to the furthest point of supply will be 300 miles. This would be easy of accomplishment now that systems up to 100,000 volts are capable of reliable operation. The potential drop should not prove excessive over such a system, and should be not greater than 4 per cent. This scheme appeals to one very strongly, and even if nothing comes of it at present, its potentialities for the country's good should not be lost sight of. Other points worthy of consideration are the possibility of the recovery of the by-products of the coal should it prove of the quality suitable for that purpose.

SOUTHERN VAN RYN

Some good reasons for investing in this great OUTCROP mine on the Van Ryn and Nigel Reefs :—

(1) The Mine is unique in the world's greatest goldfield.
(2) 2,146 Gold Claims entirely owned by Shareholders—no Government share of profits to pay.
(3) Over £40,000 cash in hand and new working capital continually being paid in.
(4) £50,000 worth of plant, equipment and stores all paid for.—No debentures and no debts.
(5) Two pay reefs to draw from, whose steep dip means large tonnages and cheap mining. The Nigel Company earned nearly a million profit on the Nigel Reef alone, from about one-eighth of the number of claims on the Nigel Reef owned by Southern Van Ryn.
(6) Will begin gold production in October from the 30,000 tons of pay reef already developed.
(7) 5,000,000 tons of good coal on the property, which can be mined at 3s. per ton. This coal is already supplying power to the gold mine, and is alone worth more than the Company's capital.

Buy while the market is low for the rise which is coming; or, better still, buy to hold for dividends, in

THE COMING GREAT MINE OF THE FAR EAST RAND!

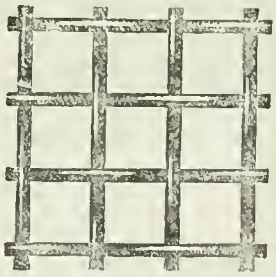
For further particulars write or apply to the Managing Director, Mr. W. E. BLELOCH, 3, Transvaal Bank Buildings, Fox Street, Johannesburg.

London & Rhodesian Mining & Land Co.

An interest in Premier Portland Cement Co. (Rhodesia), Ltd., has been acquired by this company and Rhodesia, Ltd., on joint account. The accounts of the cement company for the financial year showed that a profit of £13,683 has been made on an issued capital of £41,465. Considerable additions to the plant have since been made, with the result that sales for the current year have materially increased.

SCREENING

Order No.	Gauge.	Space. inch.
S2031	20	$\frac{3}{8}$
S2032	18	
S2033	16	
S2034	15	
S2035	14	
S2036	12	
S2037	10	



2½ Mesh, No. 16, Steel.

Ask us for quotations for all kinds and sizes of Screening; made in our own factories, and promptly delivered.

The S. A. Wire Co., Ltd.

P.O. Box 651, Durban. P.O. Box 2139, Johannesburg.

Coal and Oil Shale Development on the Geluk Property.

Geluk Oils, Ltd., have recently acquired over 8,000 morgen situated in the Ermelo district of Sheepmoor and have already found some very fine outcrop coal and shale, the coal itself showing the highest calorific value (13·27) ever obtained from outcrop coal in Africa, and the ash is 7·50, which is practically the lowest known here. The farms are situated adjacent to Sheepmoor Station, so that the line runs clean through the property, consequently there will be no trouble in marketing the coal once the company's shafts are down. There have been various seams found at outcrop, and borehole results in the district practically prove that the coal lies very heavily in good-sized seams extending over a considerable area. With a view to proving what really lies underground the company are now busy sinking a number of shafts, and as the results obtained from these shafts come to hand they will be published from time to time for the information of the public, as the directors have determined that this shall not be a gamble on the share market and no attempt has been made to manipulate the shares in the market.

There are undoubtedly a number of areas in which good coal is known in S.A., but in the majority of cases the locality is so far from a railway that it would cost very many thousands of pounds to lay down the railway line, even if it were possible to get the Government to undertake the building of same. With Geluks the moment the area is proved it is intended to proceed at once with proper machinery to put coal on the market, and the quality of this coal is so high that the company has already had several offers to take the whole of the output. As it will be necessary to run a siding from the various shafts into the railway at Sheepmoor, it is estimated that coal will be laid at the pit's mouth at about 3s. per ton or less, and as high-class bunker coal is worth at the present moment 30s. at the coast, it follows that the outlook for Geluks is very promising. It is not intended in this short sketch to go into details, the directors contenting themselves with supplying us for public information with the main facts. Quite apart from the large deposits of coal known to exist on these properties recently acquired, there are also a number of very wide seams of shale which yield oil as high as 30 to 36 gallons to the ton.

Encouraging Reports from Pilgrims Rest.

The following report of the Inspector of Mines (Mr. T. G. Trevor) on this district for the year 1919 has been published in a recent Blue Book:

Pilgrims Rest District.

Very satisfactory progress has been made in the extension of mining operations throughout the district, and prospecting and development work on gold, pyrites, and asbestos properties is proceeding with very encouraging results.

Transvaal Gold Mining Estates.—Development at Poniesкrantz Mine continues to expose fair quantities of payable ore in the oxidized zones, but as development pierces the hill the percentages of payability lessen appreciably. At the Central Mines development has increased considerably, and in other areas has proceeded with normal results, payable areas being mostly confined to somewhat isolated patches. At Vaalhoek, results on Glynn's Reef in the river section have been promising; but all work has been greatly hampered by unstable native labour conditions. At Elandsdrift, the drought has had a very severe effect upon the water supply; but the new power line from Sabie is now completed, and it is anticipated that this will help considerably. The scheme for the erection of a hydro-electric station on the Nel's River had to be abandoned, as the company could not come to terms with the owner of the proposed site. An arrangement was come to with the Glynn's Lydenburg, Ltd., for the supply of about 100 horse-power. The line has now been completed at a cost of about £7,500.

Glynn's Lydenburg.—Development is proceeding on the werf mynpacht, and, according to the manager, there is every indication that a further very considerable amount of ore will be exposed on Compound Hill. The additions to the plant have improved its efficiency, and generally the prospects of the mine are very satisfactory.

Pilgrims Rest Consolidated.—Crushing operations were carried on until near the end of the year, when it became apparent that it would be impossible to continue without incurring serious monthly losses, owing to want of development. Milling was consequently suspended on both properties—Frankfort No. 456 and Morgenzon No. 1487—and a programme of development has now been commenced.

Pyrites.—In spite of the numerous drawbacks which had to be contended with, the industry has made fair progress during the year.

Rietfontein (T.C.L.)—C. A. McDonald, Ltd.—Arrangements have been made with the Delmore Company to treat the concentrates and return the value of the gold contents less costs. The Transvaal Consolidated Lands found it impossible to secure reasonable extraction owing to the refractory nature of the ore, and the property was offered for sale by public auction. The company bought it in to cover the bond, and let it on tribute to Mr. McDonald.

Rhodesian Shares.

A London correspondent writes, apropos of "Rhodesians":—"Prices have hitherto shown more tendency to slip away than to improve. A good deal, of course, depends upon the coming award of the Cave Commission to the Chartered Company, but the opinion is still held in usually well-informed quarters that Chartered shares will lead the forward movement in Rhodesians when the latter really sets in in earnest. When that occurs, such shares as Bechuanaland Exploration and Willoughby Consols will doubtless be well to the fore. As regards gold mining shares, Lonely Reefs and Shamvas are still the pick of the bunch. The Globe and Phoenix is awaiting further development reports, and the same applies to the Gaika Gold. The rise in Rhodesia Broken Hills has, so far, proved but a flash in the pan, despite the encouraging character of the report."

NOTICE.
PHOENIX PIPE AND METAL COMPANY
No. 6, LONDON HOUSE, LOVEDAY ST., JOHANNESBURG.
PIPING, ⅛in. to 16in., in Steam, Black and Galvanized.
VALVES, all kinds and sizes, also all Pipe Fittings.
CORRUGATED IRON, FENCING MATERIAL, TRUCKS, RAILS, ETC., AND GENERAL MACHINERY.
We carry large stocks of the above, in both new and second-hand, and solicit your enquiries.——TELEPHONE 1801, CENTRAL.

Oil from Bituminous Shale and Brown Coal.

LESSONS FROM GERMANY—HOW THE INDUSTRY GREW THROUGH ECONOMIC PRESSURE.

It is of the greatest interest to South Africa at this juncture to note that the German Government has decided to exempt from coal tax all coal used in the production of tar oils. This is the first official move in a comprehensive plan for making Germany independent of the outside world's oil and even for converting her into an oil-exporting power. During the War experiments were made in producing oil from brown coal and from bituminous shales, and the native output was considerably increased. No technical difficulty arises. The shale fields are inexhaustible and the output of brown coal is increasing, and in 1919, with 93,800,000 tons, considerably exceeded the 87,116,000 tons of 1914. The production of native oil is, therefore, merely a commercial problem. Shale oil was formerly produced in South Germany, but production was killed by American competition. To-day the high price of oil and the low mark exchange make its resumption practicable. The production of lubricating oil from brown coal has attained great dimensions. It was begun in 1916 by the German Mineral Oil Company at the suggestion of Mackensen at a time when the shortage of lubricants threatened to bring the whole war machine to a standstill. Brown coal lubricating oil was first produced on a commercially profitable basis in 1918. The company mentioned has bought up several Central German brown coal mines and has put up plant. Particularly good oil is being extracted from the so-called " resin brown coal " of Thuringia, which yields 32 per cent. of tar. In Upper Silesia several companies are making brown-coal oils, and the prohibition against the import of benzine has encouraged production of brown coal benzine. Other companies are turning attention to the copper shales of Hesse Henau (Thuringia) and Mansfeld in the Harz, which, in addition to copper ore, contain about 20 per cent. of fossil fish and are highly bituminous. During the past year eight companies have been founded or have increased their capital for the purpose of distilling oil from native raw materials. The German production of crude oil of all kinds in 1916 was 1,500,481 tons. A report of the Mineral Oil Company predicts that with favourable price conditions Germany may ultimately cover her whole native demand.

THE . . .
BRITISH MANNESMANN
TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: " THAINE."

Kafue Copper.

The report of the Kafue Copper Development Company for 1919 states that the issued capital remains unchanged at 275,007 shares of £1 each. The concessions held by the company in Northern Rhodesia comprise: (1) Thirty square miles of land (19,200 acres) carrying mineral and land rights within the boundaries of which are located the Silver King, Sable Antelope, Crystal Jacket, and other copper propositions, situated about 110 miles from Rhodesia Broken Hill railway station; (2) two farms (Hippo, 6,000 acres) situated on the Kafue River, about 145 miles west of Rhodesia Broken Hill; and (3) 160 mining claims, known as the " Hippo," pegged within the boundaries of the two farms. The revenue derived from the tribute of the Silver King and Sable Antelope group of properties during the year amounted to £1,060, the output being 123 tons of copper valued at £11,214. The agreement with the tributor has been extended for a further period of three years. The development work at the Hippo Mine has now been completed. The ore deposit at the 200 feet level was driven upon for upwards of 100 feet, and was found to be unpayable.

* * * *

The Institution of Mining and Metallurgy and the Ministry of Mines Bill.

We have received from the Council of the Institution of Mining and Metallurgy a copy of a letter which they have addressed to the Prime Minister of Great Britain embodying a resolution passed by the Council, which defines the attitude of the Institution to the new Ministry of Mines Bill. The letter is as follows:—" To the Right Hon. David Lloyd George, M.P. (Prime Minister). Sir,—We have the honour to transmit to you the following resolution which was unanimously adopted at a meeting of the Council of the Institution of Mining and Metallurgy, held yesterday: ' Resolved: That the Council of the Institution of Mining and Metallurgy are opposed to the " Ministry of Mines Bill " submitted to Parliament by the President of the Board of Trade, on the ground that its title is misleading and does not truly indicate its purport and the nature of the powers sought under it; and in the opinion of the Council all reference to metalliferous mines and quarries should be omitted from the Bill altogether, unless the powers sought are specifically defined.' The Institution of Mining and Metallurgy represents the mining of minerals other than coal and the metallurgy of minerals other than iron and steel.—We have the honour to be, Sir, your obedient servants, (Signed) Frank Merricks (President), C. McDermid (Secretary). July 16, 1920."

Box 3807. Tel. 5892.

WRIGHT'S ROPES

H. ALERS HANKEY - - - Sole Agent.

The Improving Demand for Diamonds.

LATEST REPORTS FROM LONDON DESCRIBE CONDITIONS IN THE WORLD'S MARKETS AS STEADILY IMPROVING.

According to the latest reports from London, prognostications regarding an improving diamond market have been more than fulfilled, and a considerable expansion of business, both in cut and rough diamonds, is recorded. The tone of the market alike in the Continental centres and London is much stronger, and we are informed that large sales of brilliants have taken place in the Far East, with the result that the Indian houses are placing substantial orders, particularly for the off-coloured goods, which find their biggest market in that part of the world. Advices from America are also more encouraging, and some important buyers from that side are now in London.

Despite the stagnation of business during the past few months, there is no offering of stock now that the demand has set in; on the contrary, holders of goods are very firm, and something like the conditions of the early part of this year and the end of last year seem likely to prevail again. This is, of course, mainly due to the wisdom of the Diamond Syndicate and the big producers, who have guided the market in an exemplary manner, and by refusing to show goods during the dull times have maintained the strength of the industry. During the slack period there was no fall in the price of diamonds, as we have frequently pointed out. It is believed now by those who are most competent to judge that business will in due course resume its normal aspect, and that the trade will once more continue to flourish, to the benefit of the shareholders in the producing companies.

It is to be hoped that there will be an influx of buying from America. This now seems more than probable, as it will undoubtedly assist the exchange between this country and the United States, a fact which should not be lost sight of by those who, forced by the dear-money party of the Government, have done considerable harm to the trades of this country. The strength of the big diamond producers and their allied firms has enabled them once again to guide the ship safely into the calmer waters of good business.

Vryheid (Natal) Railway.

The directors of the Vryheid (Natal) Railway Coal and Iron Company have called a meeting of the holders of the issue of £100,000 six per cent. first mortgage debenture stock for the purpose of concurring in the sale of the company's railway for £75,000, and for considering an offer of the company to purchase the debentures with the proceeds and other moneys, and of varying the rights and modifying the security of those debenture holders who do not accept the offer. In a letter to the London papers, the Industrial and General Trust state: "The covering circular makes reference to consultation with the principal debenture stockholders, and as one of those consulted we intimated, both before the notice was issued and since its issue, that, although willing to accept the offer for our own debenture stock, we could not approve the resolutions as drawn because they seriously prejudice the rights of those who do not accept the company's offer within the prescribed time. The United States Debenture Corporation, the trustees for the issue, take the same view. We therefore suggest that debenture holders should personally attend the meeting at Winchester House, London, E.C., and bring their stock certificates with them, or they may be debarred from voting."

ARMSTRONG-WHITWORTH

Sole Distributors—
ARMSTRONGS & MAIN
Limited,
Johannesburg.
P.O. Box 5988 'Phone 5203

A.W.
SUPER
PREMIER

Sole Distributors—
ARMSTRONGS & MAIN
Limited,
Johannesburg.
P.O. Box 5988 'Phone 5203

HIGH SPEED TOOL STEEL

For Greatest Cutting Efficiency.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

A NATIVE TRAINING SCHOOL.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—I was very much interested in reading your article on the "Working Costs Problem" appearing in your issue of the 14th August relative to costs and the various suggestions made by you in order to reduce these costs. With regard to your remarks on a native training school, I trust you will keep on hammering away at this subject until a trial is made. I speak and write with the knowledge of an old miner, and I know how difficult it is to show any efficiency on a mine when the raw native labour is depended upon. It takes months before these natives are trained even in the most rudimentary methods of mine work. If a training school were opened in the native territories and a few of the old miners suffering with miners' phthisis were employed to train the raw article before they leave their kraals in underground work and safety first, I believe a lot of good would result and there would be a greater percentage of efficiency on our mines. This should be a matter for the Government to take up.—Yours, etc.,

OLD SHIFT BOSS.

Re ANTICLINES IN THE BLACK UMFOLOZI VALLEY.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—Since my last letter I have been down to the valley, to investigate these places, and was quite satisfied with what I have seen. The book written by S. Herbert Cox (5th edition), on page 203, re petroleum, reads as follows: "An abundant source of petroleum is to be found in the oil-bearing schists, or as they are sometimes incorrectly termed, bituminous schists. According to Dufresnoy the oil in these schists originates from the decomposition of animals, especially fishes," etc., etc. Now, if this book is correct, the formation is also correct. The rocks from the synclines down, up to the anticlines have the decomposed fish smell, and this on the very surface. Is this not sufficient proof, as after ages and ages of weathering to get this result? I can do nothing more than to recommend boring operations, and I am quite willing to assist in bringing would-be undertakers to the spot.—Yours, etc.,

"PROSPECTOR."

Vryheid District.

COAL OUTPUTS.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—With reference to your special "Coal Number" which you published some little time back, I suggest for your consideration that it would enhance the value of that number and likewise prove of very great interest if you could see your way to publish monthly details of the outputs of the Transvaal and Natal collieries, showing the output from each individual mine. I feel sure that this suggestion will commend itself to you and look forward to seeing you adopt same.—Yours, etc.,

"INTERESTED."

[We have found difficulty in obtaining these returns each month, but will make another effort.—Ed.]

MINERALS IN THE WAR PERIOD.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—I send you herewith for review Reports which constitute parts of the digest of information on the mineral industry of the British Empire and foreign countries for the period 1913-1919, which is being issued by the Imperial Mineral Resources Bureau. It is proposed to issue each part as it is completed, as it is considered that a more useful purpose will be served by so doing than by waiting for the completion of the whole digest. The parts are not monographs on the respective minerals, but rather are in the nature of synopses of the information available as to the mineral industry for the period under review. Part IV. of the General Report of the Chief Inspector of Mines for the United Kingdom dealt with the mining statistics of the British Empire and foreign countries, but that publication ceased to be compiled and issued after the year 1912. It is necessary, therefore, to fill in the gap in statistical information created by the cessation of that work, and for this reason the work of the Bureau has been devoted to giving some account of the progress of the mineral production of the Empire and of foreign countries over the period between 1913-1919.—Yours, etc.,

L. W. HILL,
Superintendent of Publications.

Publications Department,
H.M. Stationery Office,
Westminster, London, S.W.1.

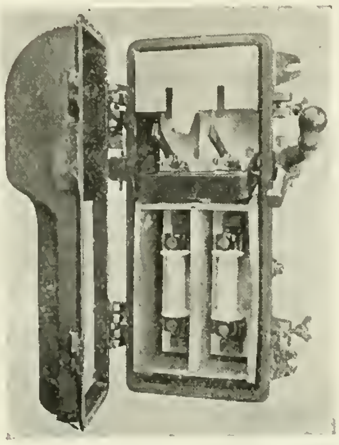
[The reports received deal with arsenic, Fuller's earth, magnesite and chrome ore, and may be seen at this office.—Ed., *S.A.M. & E.J.*]

South-West Africa Company.

At the last annual meeting of the South-West Africa Company the chairman was hopeful that before another year had elapsed the directors would be "able to review our position, see where we are, and how soon we shall be in a position to resume dividends." He was somewhat too optimistic, for the accounts for 1919, just to hand, show the situation to be much what it was twelve months ago. Of the investments of £1,322,000, no less than £733,800 is inscribed or deposited in Germany, and it is quite impossible yet to assume the approximate real value. No credit has been taken at profit and loss for the interest accrued on the investments in Germany, but the amount has been placed in suspense in the balance sheet and is covered by a reserve of £219,200. The investments in London appear at £588,800, their market worth being £501,200. The total income last year was £29,100, as compared with £27,900, and had the German revenue been included the figure in both instances would have been £43,000 bigger. After providing for administration and other charges the net profit is £4,700, as against £5,800, and raises the total balance in hand to £99,400. General sales of farms to settlers have not yet been resumed, but the Rietfontein property has been sold for £31,000. Freedom of prospecting has now been reintroduced over the greater part of the Protectorate, and the company's fees and claim rents have wisely been reduced so as to bring them in line with those leviable by the authorities.

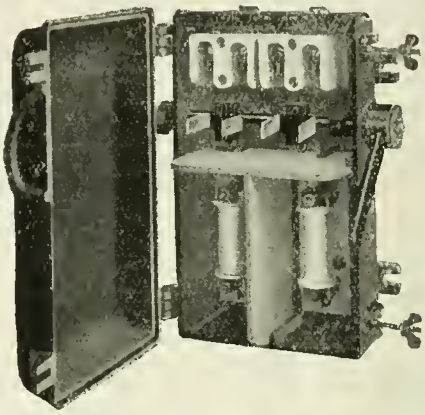
REGD TRADE MARK

"TWIN BREAK" SWITCH
WITHOUT FUSES.



"WITTON" SWITCH & FUSES.

HINGED COVERS CANNOT BE OPENED UNLESS THE SWITCH IS IN THE "OFF" POSITION.



"TWIN BREAK" SWITCH & FUSES.

IRONCLAD SWITCHGEAR

We hold large stocks covering a comprehensive range of Ironclad Switches and combined Ironclad Switches and Fuses enabling us to give

:: IMMEDIATE DELIVERY ::

BRITISH GENERAL ELECTRIC CO., Ltd.

P.O. Box 2406. **JOHANNESBURG.** **Telephones 4242/3.**

Tel. Add.: "Current."

Branch Office: 83/89 CASTLE STREET, CAPE TOWN; and at PORT ELIZABETH, EAST LONDON, DURBAN, MARITZBURG, BULAWAYO, LOURENCO MARQUES, Etc.

The Week in the Sharemarket.

STEADY BUT QUIET—SILVERS AND FRANK SMITHS THE FEATURES—WAITING ON OVERSEAS NEWS—SEVERAL NEW FLOTATIONS.

THE labour and political news from Overseas this week had a restraining influence on the local market, which otherwise would undoubtedly have enjoyed a small boom. At is was Transvaal Silvers and Frank Smiths were active features. On the former it is said a rich new lode has been discovered, and the shares are all now in strong hands. Frank Smiths on the prospect of successful washing are in demand, and are easily the most popular and active diamond stock. Alkalis have been quieter after some activity. All gold stocks seem in the doldrums, despite the settlement of the Sunday strike and the maintenance of gold about 115s. 6d. West Ends are greatly fancied and the news from Postmas is highly favourable. The many new issues announced this week, comprising oil, base metal and industrial shares show that money is regarded as plentiful, and certainly with any brightening of the horizon oversea there would be a great increase in market activity here. Oils have come into a new lease of life on Mr. Trevor's report, and it looks as if a big industry will eventually arise therefrom.

	Fri., 27th.	Sat., 28th.	Mon., 30th.	Tues., 31st.	Wed., 1st.	Thurs., 2nd.
Anglo-Amer. Corp.	35 10½*	34 6	33 3	34 0*	32 6a	34 0†
Bantjes Cons.	3 0*	3 0*	3 0*	3 0*	—	4 0†
Brakpan Mines	59 0†	50 0†	—	47 6*	48 9†	48 9†
Breyten Colls.	—	8 0*	8 0*	8 0*	—	—
Brick and Pot.	—	—	—	—	—	4 9*
British S.A.	—	15 0*	15 0*	15 0*	—	17 0†
Bushveld Tins	1 0*	1 0*	1 0*	0 10*	1 1	1 0*
Cassel Coals	—	—	30 0*	31 0*	—	31 0*
Cinderella Cons.	1 6†	—	1 6†	1 6†	—	—
City and Subs.	7 6*	7 3*	7 9†	7 0*	7 0	6 9*
City Deeps	56 3*	57 6†	56 9†	56 0*	55 0*	54 0*
Clydesdale Colls.	—	25 0*	—	26 0†	—	26 0†
Con. Investments	30 0†	—	—	—	—	—
Con. Langlaagtes	16 0*	16 6*	16 6*	16 6*	—	16 0*
Con. Main Reefs	15 3*	14 9*	15 0	14 9	14 6*	14 10½
Con. Mines Selection	22 0*		—	22 0*	—	22 0*
Coronation Frees.	1 9*	1 9	1 9	1 6*	1 5*	1 8†
Coronation Synd.	—	13 0†	11 3*	11 0*	11 6†	10 6
Crown Diamonds	6 11	6 9*	6 10	6 9*	7 0a	6 10*
Crown Mines	61 0*		51 0*	51 0*		50 0*
Con. Diamonds	32 0	32 0*	32 6	32 0*	31 6*	31 6
Daggafontein Mines	11 3*	11 3*	11 3*	11 3	11 3*	11 3
De Beers Pref.	£11¾†	£11*		—	—	—
East Rand Coals	2 6†	2 6†	2 0*	2 5*	2 5*	—
East Rand Deeps		—	—	1 0†	—	—
East Rand Props.	—	7 9*	8 0	7 9*	7 9*	8 0
E.R. Debs.	£68*	—	£70*	£70*	£70*	£70*
Frank Smith Dias.	18 9	19 3	18 6	18 10½	17 9*	18 0
Geduld Props.	38 0*	39 0a	38 0*	38 0	38 3†	36 3*
Ginsbergs	2 9*	—	—	—	—	—
Glencairns	1 3*	—	1 3*	1 6*	—	1 3*
Glencoe Colls.	6 9*				6 6*	—
Glynn's Lyden.	10 6*	—	10 6*			—
Govt. Areas	84 6	84 0*	84 0*	84 6	85 0†	84 0*
General Mining	9 0*	—	9 0*	—	—	—
Hume Pipes	23 6†	22 0*	23 6†	22 6*	22 6*	22 0*
Jhb. Bd. of Execut.	39 6*	39 6*			—	39 6
Jupiters	—	—	2 0*	—	2 0	2 0†
Klerksdorp Props.	2 0*			2 0*	—	2 3†
Knight Centrals	4 6	4 6*	4 6*	4 8	4 6*	4 3*
Knights Deeps		4 6*	—	5 0*		5 0*
Kaalfonteins	0 3*	0 3*	0 3*		0 3*	
Lace Props.	9 9*	—	—	—	—	9 0*
Leeuwpoort Tins	—	18 0	18 3*	18 0*	18 6	18 3*
Lydenburg Farms	6 9*	7 3†	6 9*			—
Meyer and Charlton	—	82 6*	82 6*	—	—	82 6*
Midelvlei Est.	1 3*	1 4*	1 4*	1 4*	1 4*	1 4*
Modder B's	132 6	133 9*	134 6	135 0	132 6*	132 6*
Modder Deep	43 0	42 9*	42 6*	42 3*	42 3*	42 3*
Modder Easts	22 3	22 0*	22 0*	21 9*	21 6*	22 0
Do. Options (4yrs.)	6 9a	6 1*	6 3*	6 3	5 9*	6 0
Modder Wests	16 9*	17 0*	12 0	17 6*	17 0	17 6
New State Areas	28 0*	27 6a	28 0*	29 0	29 0	
Natal Naviga. Colls.		25 0*		25 0*		26 0*
National Banks	260 0*	260 0*	260 0	260 0*	—	260 0*
New Eland Dias.	—	57 6*	51 3*	52 6*		55 0†
New Era Cons.		8 6*	8 6*	8 6*	8 6*	8 6*
New Geduld Deeps	1 7*	1 7*	—	1 7*	1 7*	—
New Heriots	—	—	6 9*	6 9*	—	6 9*
New Kleinfonteins	8 0	8 3†	8 0	7 9	—	7 6*
New Modders	69 0*	69 6	69 9	70 3	69 3	69 0*
Nourse Mines	11 0*	—	11 0*	12 6	11 0*	12 0
Pretoria Cements	67 6	67 0*	66 6*	66 0*	67 0	66 6*

	Fri 27th.	Sat., 28th.	Mon., 30th.	Tues., 31st.	Wed., 1st.	Thurs., 2nd.
Princess Estates	—	0 8*	0 8	0 8*	0 8*	0 6
Rand Mines	51 6*	51 0*	54 0*	51 0*	51 0*	51 0*
Rand Nucleus	2 0†	1 3*	1 3*		—	1 3*
Randfontein Deeps	6 3	6 0*	6 4*	6 0*		6 6†
Randfontein Est.	17 9b	17 6*	17 9b	18 0	17 9*	17 6*
Roberts Victors	11 9*	11 0*	15 0	14 0*	15 0†	
Rooibergs	6 9*	6 9*	6 9*	6 9*		7 0†
Roodepoort Uniteds	0 6*	0 6*			—	0 6*
Ryan Nigels						3 6*
Rouxvilles	21 6	21 0	21 0	23 6*	23 3*	23 0*
Shebas		1 9†		—		
Simmer Deeps		0 6†		—		0 6†
S.A. Breweries	29 0†	29 0†	29 0†	29 0†	—	29 0†
S.A. Lands	4 9*	5 0	5 0*	—	5 0	
Springs Mines	39 0*	38 0*	39 0	38 6	38 6	38 3*
Sub Nigels	16 9	16 6*	16 7½	16 6*	16 6*	16 7½
Swaziland Tins	11 0	—	—	—	—	
S. Van Ryns	7 9	7 11	7 10*	7 10*	7 10	7 10
S.A. Alkali	33 6	33 0	31 0	34 6	34 6	32 0*
S.A. Options	16 6†	16 0	15 0	16 6	14 6*	14 6*
S.A. Townships	12 6*	12 6*	12 6	13 0	13 0	12 9*
Transvaal Silver	87 6	88 0	86 0	91 0	97 6	96 6
Transvaal Options	67 9	66 6	62 6	71 6	73 6	72 0
Tweefontein Colls.	20 0*	—	—	—	—	
Trans. G.M Est.	12 0*	11 3*	11 3*	12 0*	12 0*	12 0*
Union 5 p.c.	£100¼	£100¼*	£100½	£100¼	£100½*	£100¼
Victory Diamonds	1 4	1 1	1 3*	1 2	1 1*	1 1*
Van Ryn Deeps	73 6*	74 6	71 0*	71 3	—	73 9
Van Dyks	—		1 6*		1 6*	
Village Deeps	9 3*	9 6*	9 6*	9 6*	9 6*	9 6*
Village Main Reefs	8 0†	7 6†	—	—	—	—
West Rand Cons.	5 0†			5 0†	4 0*	—
Western Rand Est.	4 4*	4 4*	4 3*	4 4	4 3*	4 3*
Witbank Colls.	50 0*	50 0*	50 0*	50 0*	48 0*	48 0*
Wit. Deeps	7 6*	—	7 0	7 0*	8 0*	
Wolhuters	3 9*	3 6*	3 8*		3 9*	3 10*
West Springs	15 7½	15 3	15 6	15 0*	15 0	15 0*
West Options	2 6*	2 3*	—	2 3†	2 0	2 0
Zaaiplaats Tins	7 0	7 0	7 0*	6 9	6 9*	6 9

*Buyers. †Sellers. aOdd lots. bEx London.

PERSONAL.

The list of certificates issued by the Mines Department for the period ended August 31 is as follows:—Mine Overseers (Metal Mines): J. A. Biccard, H. A. Mills, R. H. Tredgold, C. O. Trevaskis, F. H. Winterbach. Mine Surveyors: J. Angwin, V. O. Reid.

* * * *

The name of the lady doctor who is to make a report on native food values on the mines is Dr. Delf, not as incorrectly spelt in our last issue.

* * * *

The *Pretoria News* reports that Mr. J. Coetzee, at one time owner of the Sheba Mine, Barberton, and for over eight years Director of the Leper Asylum, Pretoria, died in Pretoria on Tuesday last at the age of 80. During the 1881 war he commanded the Boer troops and took possession of Middelburg, Transvaal, and later was commissioned by the Transvaal Government to negotiate peace terms with the British Government.

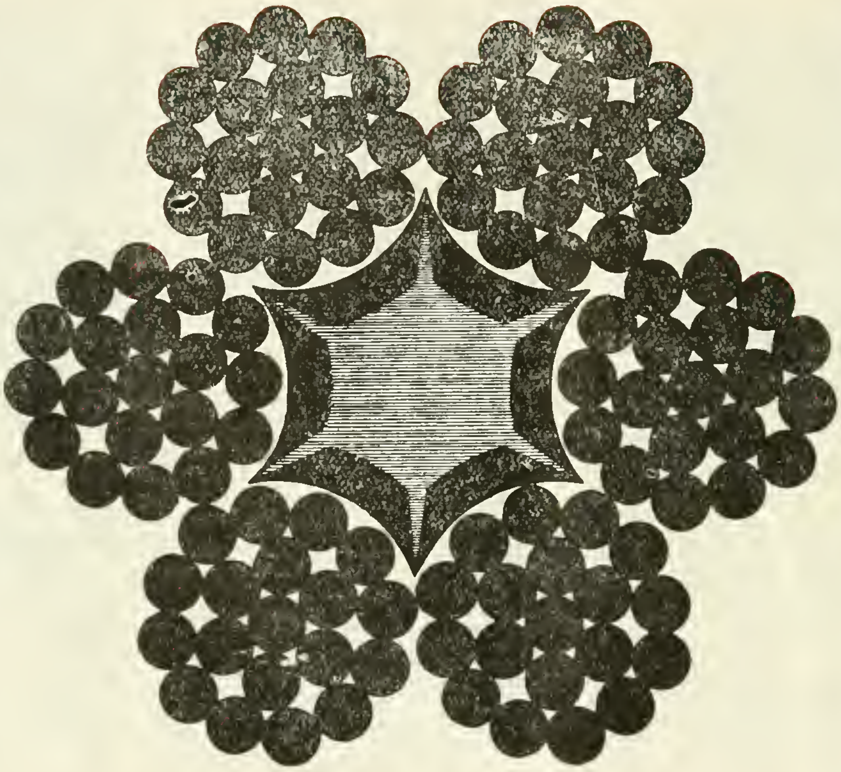
Miners and their Wages.

It is understood that the present cost of living is receiving further attention by some men on the mines, and a proposition has been sent forward to the South African Industrial Federation by one union asking that the position should be revised and a demand be made for an increased wage. The Executive of the Federation has given the matter attention, and has sent it to the different unions for consideration and report. Thus is humour found in the most unexpected places!

CRAVEN & SPEEDING
BROS.
SUNDERLAND
ENGLAND.

Sole Agents for Transvaal and Natal:

CLYDE TRADING Company, Ltd.,
Howard Buildings,
C/o MAIN & LOVEDAY STREETS,
Box 457. :: JOHANNESBURG. :: 'Phone 5964.



It provides greater safety than can be secured by the regulations attached to the New Mines Act, because it is impossible for any acid in the hemp core to corrode the wires in the strands. A rope with an ordinary core frequently appears to be in good condition on the exterior, while its interior is in a dangerous condition.

SOLE MANUFACTURERS.
"WESTGARTH PATENT CORE" WIRE ROPE.

TRADE AND INDUSTRIES SECTION.

Week in the Mining Material & Engineering Trades

BUSINESS BRISKER—STEEL AND IRON—TIMBER AND BUILDING MATERIALS—OILS AND COLOURS—IMPORTS AND EXPORTS FIRST HALF OF 1920—ELECTRICAL GOODS.

[*By a Special Correspondent.*]

Business in the mining material and engineering trades has been brisker during the past week than has been the case for some considerable time, the mines, it may be mentioned, having purchased more freely than they have done for some time past, which means, of course, that a fair amount of steel construction work is proceeding. Commercial circles are at present perturbed over the impending coal strike in Britain, with the appalling consequences in its wake. Inquiries among the foremost importers, receiving daily cables, elicit, on the whole, the opinion that the strike may be averted.

STEEL AND IRON.

Steel plates are still exceedingly scarce and the prices are firmer, ranging from 70s. to 80s. for the thinner sizes and 50s. to 60s. for the thicker. Drill steel, 7½d., hollow ½d.; shovels and wheelbarrows, 70s. to 75s.; brass rods and plates, 2s. to 2s. 6d.; shafting, 8d. lb.; tubing, 3s. 9d. lb.; picks, 2½ and 3 lb. 37s. 6d. doz.; 4 lbs., 45s. 6d.; 6 lbs., 63s. 6d.; 7 lbs., 72s. 6d. British steel manufacturers are complaining of extensive dumping of steel from America at prices against which they cannot compete. As showing the enormous increase in imports of American steel into the United Kingdom, it may be mentioned that during the past 12 months the tonnage has gone up from 11,843 to 171,639. Things are not looking too bright oversea, what with the possible coal strike, the ever-increasing labour demands and other complications, and prices are ruling up to 50 per cent. higher; the labour and price clause at time of delivery being a fatal one as regards business.

TIMBER, IRON AND BUILDING MATERIAL.

Deals and scantlings are 2s., 2s. 1d.; galvanised iron, 1s. 5d Stocks are still coming in freely, but business is on the quiet side. Deals, it is anticipated, will be scarcer and dearer towards the end of the month. The second-hand market remains sluggish.

Bricks.—Business is rather flat owing to difficulty in getting mortgage money. Stock bricks are 70s. to 80s., wire-cut, £6 10s. to £7 10s. per thousand. Blue lime is 4s. 9d., plaster 5s. 9d. white unslacked lime 7s. 6d., slacked 6s.

OILS AND COLOURS.

A big consignment of "St. Paul's" brand of linseed oil has just arrived. Raw and boiled are at 67s. 6d. per 4 Imperial gallon drum.

White Lead.—The market is steady. Fresh stocks of "Elephant Brand" are now coming in, but there are only limited stocks, which are selling at 110s. per 100 lbs. Of Calcite the superior distemper with a velvet finish—full stocks have arrived; the price is 40s. per case of eight 7 lb. packets.

Glass.—Large consignments of sheet, plate and fancy glass have now arrived.

White Lead.—Genuine white lead in oil, small sizes, 1s. 3d. lb.; 100 lb. kegs 110s. each. "Elephant Brand." English, genuine, red lead. 1s. 3d. lb. in 6¼ lb., 12½ lb. and 25 lb. kegs; 1s. per lb. in 50 lb. kegs.

Linseed oils, raw or boiled small bottle, 2s. 3d.,; 7 lb. tins, 14s. each; 4 Imperial gallon drum at 67s. 6d. each.

Genuine spirits of turpentine, small bottles 3s. 6d. each; turpentine substitute 10s. 6d. per tin, each 5-6th Imperial gallon.

Red oxide in oil, 90s. 100 lbs.; 25 lb.; 12½ lbs., 12s. 6d.; 6¼ lbs., 6s. 6d.

Finest English putty, 9d. lb., in bladders. Ready mixed paints, 1s. 6d. lb. Roof paints, 14 lb. tin, 17s. 6d.; 70 lb. drum, 85s.

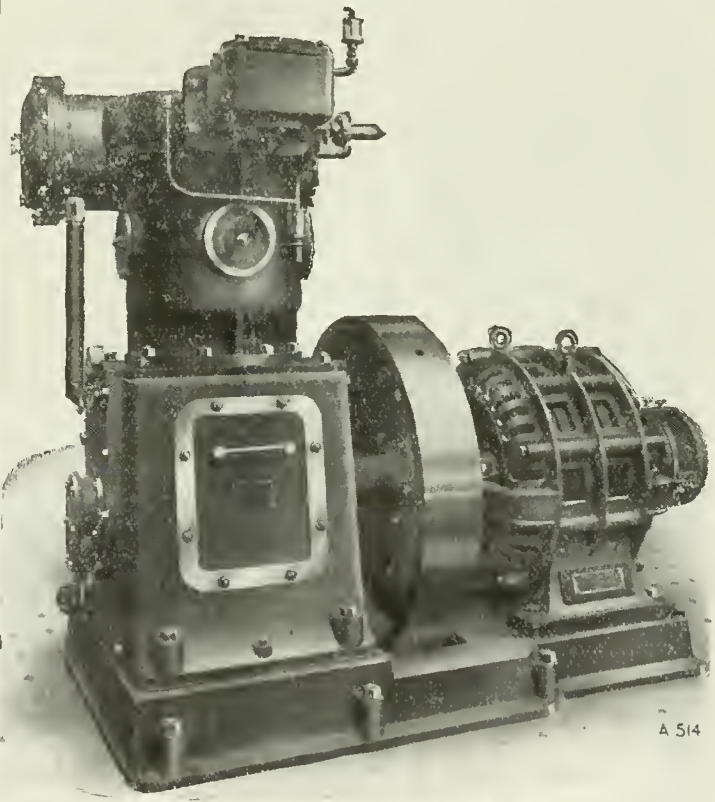
Black bitumen solution varnish, 9s. 6d. per ·83 Imperial gallon. 10 ft., 12 ft., 14 ft. and 16 ft. lengths by 3 ft. and 4 ft., 5¾d. per Enamels, 35s. per ·83 Imperial gallon. Beaver board, in 6 ft., 8 ft., square foot. Glues, common, 1s. 3d. per lb., finest Russian, 2s. per lb. Gold leaf, English, plain, 4s. 6d. per book.

IMPORTS AND EXPORTS.

The figures are now available in respect of the Union's imports and exports for the six months ended 30th June last, which shows a decrease as regards exports, due chiefly to the movement of gold, of over seven millions. For 1919 raw gold was exported to the value of nearly 31 millions, while that for this year has been adversely affected by the movement of gold. As regards foodstuffs, a huge increase is noted in exports of approximately 100 per cent.—being made up of wheat, confectionery, fish, coffee, tea and whisky. Shipping is on the up grade, 753 ships having entered Union ports for the first six months of this year, as compared with 696 last year, the tonnage landed being 271,371 and 180,699 respectively, although the tonnage cleared this year was less.

ELECTRICAL GOODS

Trading in electrical materials is quite satisfactory, but without any outstanding features. We understand that Messrs. Hubert, Davies and Co., Ltd., have secured, *inter alia*, the contract for lighting the Vereeniging Municipality, the Victoria Falls Power Co. supplying the current. The company, as is well known, has a large station at Vereeniging.



"SENTINEL" AIR COMPRESSORS

Large Stocks carried in South Africa, ready for immediate delivery, Steam Driven or Belt Drives.

SOLE AGENTS:

THE GRIFFIN ENGINEERING CO., LTD.

94 MAIN STREET, JOHANNESBURG.

The Big Lead and Zinc Deposits of the North.

A HIGHLY MINERAL AREA OF 35 SQUARE MILES BEING DEVELOPED BY THE RHODESIA BROKEN HILL COMPANY—DETAILS OF WORK AND PROSPECTS.

Few people in South Africa appreciate the big mineral developments in Northern Rhodesia. An idea may be gleaned from the following extracts from the recent speech of Mr. Edmund Davis at the Rhodesia Broken Hill Development Company, Ltd. Inter alia, he said:—

Having dealt with the figures appearing in the balance-sheet and profit and loss account, we wish to refer to the position of the property at to-day's date, which will be more satisfactory to you than were we to deal with it at the date of the balance-sheet. Our mineral area is about 35 square miles, which is very large on which to carry out boring and to thoroughly prospect within a limited period, but you will gather from the remarks which I shall make that the results so far obtained have been satisfactory. We have, as you know, various deposits, some rich in zinc and others containing lead and zinc ores of about similar percentage, and our principal work has been devoted to the production of lead, which is the easiest and earliest profit-earning part of our proposition to deal with. We have not only the two smelters taken over from the Rhodesian Lead and Zinc Syndicate, but we are also erecting an additional two, one of which we think it may be necessary to keep in reserve, in the event of anything unforeseen happening in the operating of the plant. It is difficult at the moment to give you any definite date of the starting of the third furnace and the completion of the fourth, owing to great delay in the delivery and shipment of much of the plant, but we nevertheless hope to have one running early in the following year. Our present work consists in the first instance of the development and production of lead ores at Number 1 kopje, and secondly the general prospecting of our mineral area, and in particular the proving of reserves of zinciferous ores.

RESULTS OF WORKING.

The result of the work so far carried out on Number 1 kopje has been the proving of a main ore-body of very high-grade lead, increasing in area and maintaining its richness down to 150 ft. below the surface. Below this depth the deposit appears to be split by a ridge of dolomite and at least two ore-bodies existing below the central part of the workings to a considerable depth. It is very satisfactory to note that boring has not yet shown any limitation in depth in the ore-bodies, the prospects of further continuance beyond the depths so far reached being good. In addition, the boreholes have shown that an enormous body of zinc ore exists in the vicinity of this kopje, a marked tendency being shown for the replacement of lead by zinc, which should simplify treatment. As far as depth is concerned, ore has already been struck at two points at a depth of 300 ft. vertical, these points being 250 ft apart. In the course of development it became necessary, so that proper supplies of ore should be made available, to keep not only the present plant, but the additional furnaces supplied, to make provision for draining the ore body at a faster rate than had previously been the case, and sufficient additional pumping plant is being supplied to deal with the position. The result of development and production during the period covered by our accounts has been satisfactory, and the position of the mine at the end of the financial year showed a general improvement over that at the beginning of the term. The satisfactory development referred to has only been rendered possible through success attending the Francois cementation process, which has already been followed by the sinking of the shaft to a depth of about 150 ft. In addition to the large amount of work carried out on this kopje, which has so far produced all ore supplied to the plant, a certain amount of prospecting has been carried out on the remaining area, though work had to be very much concentrated on No. 2 kopje owing to the shortage of labour and the necessity of employing it on more urgent matters. Principal attention has been devoted to this No. 2 kopje, it being our main visible supply of zinc ore, as it is necessary that we should have definite information as to the nature of the occurrence and estimates as to tonnages which might be made available at an early date.

BASES OF ESTIMATES.

With this object in view expenditure has not only been incurred in putting down boreholes to prove the existence of the ore body in depth and obtain some indications of its value, but also in sinking shafts, and the putting in of adits and the driving of crosscuts so as to expose the ore for actual inspection. The work so far carried out does not allow in every instance very close estimates to be framed, but is sufficient to form a very fair opinion of what has so far been proved and give a basis to go upon in connection with the projected zinc plant. The estimates have been framed on calculations based, in the first instance, on ore-bodies in the kopjes standing above the general level of the country, then on ore existing from surface level to 30 ft., the present water level, and finally down to 100 ft., being the general level to which boreholes have been put down. The kopje contains several ore-bodies, but the principal one is estimated to be, on the surface, 330 ft. long and 60 ft. wide, with an average height of 70 ft above the adit level, it being probable that the whole averages 24 per cent. zinc, 2 per cent. lead and ½ per cent. vanadic acid, and that these values should apply to the 175,000 tons estimated as existing above the 30 ft. level. Though very little work has been done in the other parallel ore-bodies in this kopje, it has been sufficient to prove that they are of about the same average value. Reference has already been made to the No. 1 kopje from a lead point of view, but it should also be a large source of production of zinciferous ores when we are ready to deal with the same, and in this connection it is interesting to note that we have already mined, in the course of producing lead ores, 55,000 tons, which we have dumped, this containing 23 per cent. zinc and 14½ per cent. lead and probably 1 per cent of vanadic acid. We are not yet able to give you details of other visible zinc ore supplies in this mine, but for all practical purposes we may assume as being proved in one section about 28,000 tons, averaging 25½ per cent. zinc and 3 per cent. lead; in another section about 40,000 tons, 30 per cent. zinc and 8 per cent. lead; another 40,000 tons of 26 per cent. zinc and 11 per cent. lead; 15,000 tons, 30 per cent. zinc and 11 per cent. lead; 54,000 tons(29 per cent. zinc and 11 per cent. lead, making a total of 192,000 tons in No. 1 kopje. In the immediate neighbourhood of this kopje there is an outcrop on which sufficient work has already been done to prove 10,000 tons of 28 per cent. zinc and 13 per cent. lead. There are additional outcrops, known as kopjes. In No. 3 we are already able to estimate supplies of 55,000 tons, of which 27,000 tons average 26 per cent. zinc and 7 per cent. lead.

In No. 4 kopje we estimate the supplies at 6,000 tons, averaging 19 per cent. zinc, 7 per cent. lead and 1 per cent. vanadic acid, and finally in No. 5 2,000 tons, 18 per cent. zinc, 1½ per cent. lead, and ½ per cent. vanadic acid.

FIGURES SUMMARISED.

It is not necessary at the moment to refer to various other outcrops which should prove sources of supply of ore, but simply to summarise the figures of the main bodies so far proved, which give about 210,000 tons, averaging about 24 per cent. zinc, 2½ per cent. lead, and ½ per cent. vanadic acid, and about 305,000 tons averaging 27 per cent. zinc, 10 per cent. lead, and between ½ and 1 per cent. vanadic acid, these estimates being in no case based on anything below a depth of 100 feet.

It is well known now that the main ore deposits are not of a superficial nature, and we are advised that, owing to probable bulges in ore bodies, the known existence of ore below the depth used for basing the estimates referred to, and the probable existence of large quantities below this depth, we are justified in supposing that there probably exist enormous bodies in addition to the estimate of 515,000 tons zinciferous ores referred to.

We do not think that it is necessary to add anything further, but simply to draw your attention to the very large mineral area we possess, and to the satisfactory profits now being earned with the production of lead and the probability of this being greatly added to as soon as we are in a position to approve a process and erect a plant for the treatment of the zinciferous ore. In this connection we are not only carrying out experiments on the mine, but we have also shipped some of the ore and Wankie coal to this country to carry out practical tests on a large scale in a plant which the Tharsis Sulphur and Copper Company, Ltd., have very kindly placed at our disposal, and we expect to make an arrangement with the Wankie Colliery to carry out experiments on a large scale in one of their new retort ovens.

Transvaal Colliery Employees' Demands.

A meeting of employees at Witbank on Monday decided that the reply of the colliery section of the Chamber of Mines to their demands was unsatisfactory. These demands had been made by the S.A. Industrial Federation on behalf of the miners, the reply of the Chamber embodying a refusal to advance the mechanics' wages beyond the present £8 8s., while in the case of miners the Chamber would agree to the abolition of cost of living allowances and the substitution of £9 a week consolidated pay. In regard to other employees, the Chamber's suggestion was a 40 per cent. increase on existing minimum rates and the abolition of cost of living allowances. Other points in the reply were the offer of time and a half for overtime, while the Chamber was prepared to agree to a 48-hours' week for all employees. The Chamber would not recommend that Sunday work as such must necessarily be paid for at the rate of time and a half, but pointed out that practically all Sunday work was overtime and payable as such.

Cam and Motor.

The hopes entertained that this company when it restarts crushing will make a substantial addition to Rhodesia's gold output and earn satisfactory profits for shareholders will have been stimulated by this week's official announcement regarding the experimental work undertaken. The object of the experiments was to eliminate the roasting section of the plant, and find out whether the ore could be successfully dealt with by means of wet crushing and the Minerals Separation flotation process of concentration. The experiments are now stated to have been concluded with favourable results, and the necessary alterations have been commenced. It is anticipated that crushing will be restarted on a 15,000 tons per month basis next October. Meantime, developments in the mine at the 11th, the deepest, level are reported to continue satisfactory.

* * * *

M. Claude's Synthetic Ammonia Process.

The *Financial News* gives details regarding M. Claude's synthetic ammonia discoveries. By this process sulphate of ammonia, which has been considered the best medium of imparting nitrogen into the soil, can be easily made. Synthetic ammonia is also a source of supply for explosives, and Haber's process, as used by Germany during the War, enabled that country to overcome the blockade for this purpose. The Claude process is believed to be a considerable advance on Haber's, reducing the cost of production by 20 to 30 per cent. and capital outlay of plant to similar extent.

STURROCK & CO.

GENERAL, MINING AND RAILWAY
ENGINEERS AND CONTRACTORS

beg to announce that
in future this business
will be carried on
under the title:—

STURROCK
(SOUTH AFRICA) LTD.

to whom all communications should be sent.

OFFICES:—
Barsdorf's Buildings,
MARSHALL STREET,
JOHANNESBURG.

P.O. Box 2863. Telegrams: "Delta." 'Phones 2596.

ANNOUNCING THE OPENING OF
BARIMAR
IN
SOUTH AFRICA

Following the policy of putting Barimar Branch Factories around the world, the Directors have pleasure in announcing the opening of the third Barimar Factory out of England—

BARIMAR (SOUTH AFRICA) LTD.,
Head Office—BARSDORF'S BUILDINGS, JOHANNESBURG.

Barimar (South Africa), Ltd., is completely equipped with the latest appliances for welding all metals, and with the most efficient machinery for completing repairs.

Highly skilled welders, trained in Barimar London Factories, control the technical side of Scientific Welding in the South African Factory, and these men will be able to produce the same grade of work that has made Barimar Scientific Welding famous throughout the Motor and Engineering Trades.

To SEND REPAIRS TO BARIMAR. We must see the parts before we can estimate or advise upon repair. Send them to us. First remove all fittings, then attach a label bearing your name and address. Please pay carriage. Post a letter to us advising despatch and give full instructions.

BARIMAR (S.A.) LTD.,
Ferreira Industrial Sites,
SAUER STREET SOUTH, JOHANNESBURG.
Telegrams "Barimar." 'Phone 2596. Box 2863.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.

S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.

Offices:
c/o STURROCK (S.A.) LTD.,
BARSDORF'S BLDGS.,

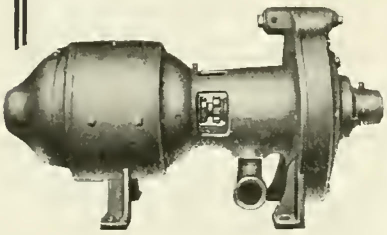
Telegrams: "BRITFLOT." Phones 2596-7.

LUCEY

THE LUCEY $1\frac{1}{2}$ K.W. TURBOLITE

The only safe way to light your mine, steam plant, boat or building is with electric lights. If you have steam power handy, you will appreciate the many handy ways in which this sturdy little machine may be used.

The Lucey Turbolite is a small portable dynamo and steam turbine—entirely enclosed, fitting it for outdoor work. The rated capacity of this plant is sixty 25-watt lamps—but in actual use, it carries a much higher load. For example, one owner of a Turbolite has kept it going 24 hours a day for over a year, overloading it at all times with 96 lights. His only replacements have been new sets of carbon brushes.

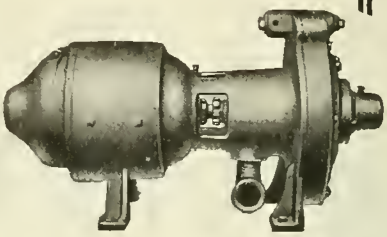


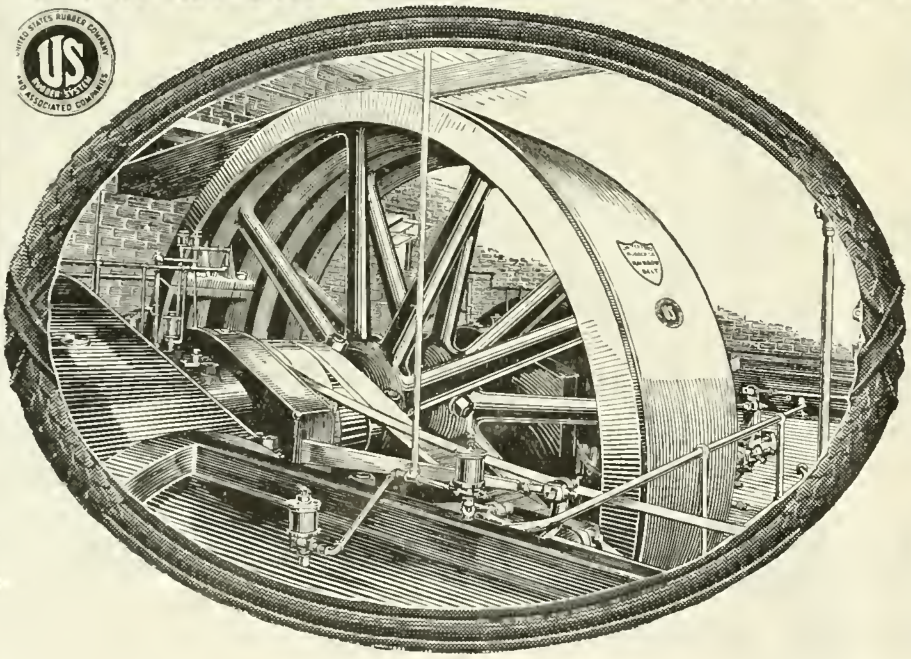
Manufactured by:

LUCEY MANUFACTURING CORPORATION,
1-5, Broad Street House, New Broad Street, London, E.C. 2.
231, Broadway, New York, U.S.A

Sole African Agents:

STEWART, SANDERS & CO., LTD.,
JOHANNESBURG.
P.O. Box 4422. 'Phone 6143.
Enquiries Solicited.





US
UNITED STATES RUBBER COMPANY
RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Rainbow Belting.

To use a Rainbow Belt - correctly installed - is to get the last possible foot-pound of power in a given drive

Every Rainbow Belt properly applied, means greater power economy——

The whole aim is to sell you not *more* Belting, but the *Right* belting for your particular requirements

The India Rubber Products Co., (S.A.) Ltd.,
OCEANA BLDGS —— SIMMONDS STREET —— JOHANNESBURG
and at CAPETOWN and DURBAN

The S.A. Mining & Engineering Journal

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891. ESTABLISHED 1891.

VOL. XXIX., PART II.] JOHANNESBURG, TRANSVAAL, SEPTEMBER 11, 1920. [No. 1511.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913.** P.O. Boxes **963** and **4573.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining and Engineering Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE
Notes and News 707

Editorial:

State Aid for Mining 709
The Story of Diamonds 711
The Fluctuations in Silver 713
The Outlook for Swaziland Tin 714
Red Cross: A World Appeal for Eastern Europe ... 715
The Mineral Production of the Empire 717
The August Output: Group Returns 719
Correspondence and Discussion: "Economy on the Mines"; "Native Training Schools" 721
Industrial Alcohol and Ether 723
Diamond Returns for July Month 724
The United States Adopts a Militant Shipping Policy 725
The Week in the Sharemarket 727

Trade and Industries Section:

The Week in the Mining Material and Engineering Trades 729

Mining Notes & News.

Sub Nigel.

The following is a copy of a cable which has been sent to the London Office:—"On No. 21 level west, from Shaft No. 1, 75 feet on drive averaged 12·7 dwts. over 12 inches. Fault then met with and crosscut driven south-westwards and intersected reef after 137 inches. Values found on drive for 40 feet westwards from point of intersection averaged 21 dwts over stoping width and drive still in high values. On drive No. 18 level eastwards from Sub Nigel C Shaft, out of the last 341 feet driven up to the end of August 196 feet averaged 14·8 dwts. over 48 inches." The Secretaries write: "With reference to the details of development results published with the monthly output figures for August, it should be noted that the footage for 21st level west is in addition to 85 feet valued at 19·2 dwts. referred to in last quarterly report."

* * * *

The Year with the T.G.M.E.

At a meeting of shareholders of the Transvaal Gold Mining Estates, Ltd., held in mail week, Sir Bartle A. Frere, Bart., expressed regret that Mr. Matthew Brown, who was to have taken the chair, was prevented from being present owing to illness. The year, he said, had been a very difficult one, but, all things considered, by no means unsatisfactory. They had crushed 190,000 tons of ore—a quantity exceeded only once in the history of the company. Gold was produced to the value of £355,600, at a total cost of £276,700, giving them a working profit of £78,900. To that had to be added general revenue, which, after allowing for debenture interest, amounted to £8,600, giving a total profit of £87,450. That enabled the directors to declare dividends amounting to 11¼ per cent., against 2½ per cent. for the previous year and 8¾ per cent. for the year before that. They had been able to crush so large a tonnage of ore because of the increase in their labour forces. After the influenza epidemic there had been a gradual improvement until towards the end of the year. The ore crushed was slightly less rich in gold than that treated during the previous twelve months, the yield, at the standard price of gold, falling by 6d. per ton. On the other hand, the working costs fell by 1s. 6d. per ton. The net result, still calculating on the standard price of gold, was an increase of 1s. per ton in the mine working profit, which amounted to £55,882. The estimate of the effect of freeing the market for gold which he made last year had been far exceeded, the actual revenue from the gold premium being £55,318, or just about equal to the mine working profit. Only £4,000 of the debenture debt was now outstanding. Since the close of the financial year the declared working profits had been as follow: April, £896; May, £4,524; June, £6,352. The decreased profit for April was due chiefly to a falling off in the yield at the Central Mines. With regard to the ore reserves, as compared with the previous year there were increases of 92,519 tons (or about 22½ per cent.) at the Central Mines, of 3,400 tons at Elandsdrift, and 36,221 tons (or about 71 per cent.) at Vaalhoek. The position of the two outside mines was satisfactory. After a few questions had been answered the proceedings terminated.

Union Railway Rolling Stock.

Since Union £6,141,734 has been spent on new rolling stock, or an average of approximately £600,000 per annum. Our rolling stock, Sir William Hoy told a Select Committee recently, cost £20,000,000.

"It stood in our books at £15,323,292, which is very good business indeed. I am perfectly satisfied with our position to-day. We have only spent £600,000 on an average on rolling stock per annum since Union, and bearing in mind that we cannot carry the traffic offered at the present moment with the rolling stock now in service, I think I should be very remiss indeed if I did not give the whole of my consideration to acquiring more rolling stock. I am not a bit concerned about the money provided for permanent way and buildings. These are assets the life of which is very much longer than rolling stock, and they are not so liable to depreciate. Even if the administration did overstep in that direction a little, it would not be a serious matter, in my opinion."

* * * *

France and the Haber Process.

According to the *Frankfuter Zeitung*, France is desirous of obtaining the patents of the Haber process owned by the Badische Anilin un Soda Fabrik. The French Government has already been allowed to take over the patents registered in France, but on November 11th, 1919, it entered into private negotiations with the Badische Company in connection with the requisition of the Haber process, and the completed agreement is now awaiting the ratification of the French Senate. The French have realised that the Claude process is not altogether satisfactory, and desire to add small technical details as used in the Haber process, so that these might be put into working at a factory shortly to be erected. The proposal is to convert a powder factory at Toulouse, at present unused, and if no private company is prepared to develop the invention, under the supervision of the State, the State will do so on its own account. It is hoped eventually to manufacture in sufficient quantities to cover both military and agricultural requirements, and so make France independent of other countries with regard to her supplies of ammonia and the nitric acid formed on its oxidation.

* * * *

Southern Van Ryn Reef G.M. Co., Ltd.

During the past week numbers of shareholders have visited the property and a party was taken out by Captain Parrack, one of the directors. The board has received letters from the visitors expressing their gratification after inspecting the now very complete equipment of the mine, and their realisation of the magnitude and immediate prospects of the company which will make its output returns in October. In view of these letters, many of which express surprise at the equipment of the mine and the advanced stage of the work, the board has agreed to provide facilities for shareholders and others interested to visit the mine. Applications should be made to the secretary. Results of latest assays from development drives communicated by the consulting engineer, September 3, 1920: Nigel Van Ryn Section—Nigel Reef.—Second Level South Drive.—Distance in 323 feet, 60 dwts. over 6 inches, only footwall portion of reef exposed. Distance in 338 feet, 78 dwts. over 6 inches, only footwall portion of reef exposed. Second Level North Drive.—Face of drive 280 feet in—32 dwts. over 10 inches, footwall portion; 4·5 dwts. over 9 inches hanging portion of reef. Total reef width, 19 inches. Northern Section—Van Ryn Reef.—Incline Shaft, continuation below 2nd level.—Bottom of shaft, 280 feet down, reef just met in shaft: 8 dwts. over 11 inches footwall portion; 9 dwts. over 12 inches hanging wall portion. Total reef width, 23 inches. First Level North Drive, Winze.—60 feet down from second level, 10·35 dwts. over 7 inches, footwall portion only exposed. The drives are being carried in the footwall shales of both reefs; consequently for the most part of the distance driven only the footwall portions of the reef are exposed. The Van Ryn Reef full average width, where exposed, is from 30 to 40 inches, and the average of recent development results over 30 inches, which is the working stoping width, is calculated at 5½ dwts. These latest assays indicate a considerable improvement on that value.

Trixie, Limited.

We are advised that after developing for 18 months, the results having turned out so well, the directors have decided to immediately erect a crushing plant. The work is in hand, and crushing will commence in about two months' time. It is expected that the mine will run for a number of years, as the amount of ground belonging to the company is very large, and capable of keeping the mill well supplied with highly payable rock. A good revenue will also be obtained from the re-treatment of sands and slimes situated on ground recently acquired, adjacent to the Trixie Block.

* * * *

Gold Production of the World.

Statistics of production from the principal gold mining regions of the world are now available. The British Dominions, according to the *Mining and Scientific Press*, report as follows:

	1919.		1920.	
	Ozs.	£	Ozs.	£
South Africa	8,330,091	35,383,974	8,418,292	35,758,636
Rhodesia	585,700	2,499,498	624,000	2,652,250
West Africa	292,500	1,240,691	307,950	1,333,553
India	461,171	1,959,976	485,236	2,062,253
Australia	1,074,713	4,565,088	1,277,474	5,426,360
Canada...	767,167	3,260,459	699,681	2,973,644
Other Regions*...	175,000	750,000	200,000	800,000
	11,686,342	49,659,686	12,012,633	51,006,696

* Estimated.

* * * *

The Union Petroleum Company, Ltd.

The particulars are now available regarding this company. The nominal capital is £150,000, divided into 300,000 shares of 10s. each. The preliminary working capital, £12,500, in 25,000 shares of 10s. each, fully paid and all issued. Vendors, £40,000, in 80,000 shares of 10s. each. Directors, Mr. R. B. Saner, solicitor, Johannesburg; Messrs. R. T. Mathison, A. Coucom, G. B. Ross, Stock Exchange, Johannesburg; and Mr. S. B. Bilbrough, B.A. Secretary and Head Office, T. A. Lawrie, Permanent Buildings. Bankers, African Banking Corp., Ltd. Solicitors, Messrs. Saner & Nathan, Aegis Buildings, Johannesburg. Auditor, J. S. Richardson, Stock Exchange, Johannesburg. Property, lease of mineral rights for 30 years, with option of renewal, for further 30 years, of farm Elandspoort No. 162, approximately 6,000 acres, Ward Vrede, District Wakkerstroom (near Amersfoort), on Royalty Basis. Crude petroleum has been discovered in spring on the property (see MINING JOURNAL of September 4, 1920). Further investigation, including drilling, is being proceeded with at once.

* * * *

Northern Rhodesia Mineral Output.

The mineral production of Northern Rhodesia for July, and total output and value from commencement to July 31, 1920, is as follows:—

	Ozs.	Value.
Gold	40·40	£169 13 4
Gold adjustment	—	12 18 3
Silver	7·70	1 3 1
	Tons.	Value.
Lead	1,436·96	21,554 8 0
Copper concentrates	nil.	nil.
Copper finished	nil.	nil.
Zinc ore	nil.	nil.
Bismuth	nil.	nil.
Mica	nil.	nil.
		£21,738 2 8

	Ozs.	Value.
Gold	10,663·57	£44,935 4 8
Silver	39,186·25	3,792 19 0
	Tons.	Value.
Lead	40,745·07	723,403 19 8
Copper concentrates.	5,232·06	220,959 2 8
Copper finished	6,788·85	341,293 17 10
Zinc ore	13,156·00	84,577 0 0
Bismuth	6·24	3,491 9 5
Mica	1·187	412 0 0
		£1,422,865 13 3

EDITORIAL.

STATE AID TO MINING.

The question of State aid to mining is discussed in the official Year Book of the Union Government. It points out that little information is available as to the terms and conditions under which the various Provinces granted aid to mining prior to the constitution of the Union in 1910. A definite step was taken in the Transvaal by making provision in a Precious and Base Metals Act, promulgated on the 1st January, 1909, to assist prospecting for and exploitation of precious and base metals. The relevant section in this law reads:—

> 129. (1) The Minister may, out of moneys appropriated by Parliament for the purpose, assist the prospecting for any exploration of precious or base metals—(a) By erecting batteries, smelting works, ore dressing works, assaying and analytical laboratories, power stations, and pumping stations; (b) by the construction of roads, pipe lines, power lines, and water-courses; (c) by the sinking of boreholes; (d) generally in any other manner prescribed by regulation he may deem expedient; and may charge fees for the use of anything so erected, constructed, or sunk, and do all acts and things and enter into all contracts necessary for the purposes of this section. (2) The Minister may, so far as he deems expedient, permit any officer of the Mines Department to advise any prospector or holder of mining title on any matter which relates to prospecting or mining for precious or base metals.

To assist in giving effect to this enactment, officers of the Mines Department were instructed to investigate and report on any feasible scheme or venture that came to notice, and, in the case of applications for assistance, to ascertain whether such had for their object the principal aim the Government had in view, namely, the ultimate establishment of a permanent industry. One of the original intentions was to assist prospectors and diggers by the erection of central batteries, but no occasion presented itself where the circumstances and situation of any number of small workings justified expenditure. Several applications were made for cash advances or grants by individuals or companies, and in a few instances where the venture gave promise of stability and permanency, money was advanced, but in each case failure was the result. In most cases where such applications are made, it is found on investigation that the applicant has become involved in financial difficulties and attempts to transfer the claims of exigent creditors to the Government. A useful form of assistance to prospectors is an arrangement made with an outside analyst to perform assays and analyses at specially low fees. Samples are forwarded to the Government Mining Engineer free of cost through any mining commissioner, postmaster, or station master, and receive the same attention as other assays for which private persons have to pay higher fees. The Government Geological Survey Department renders further assistance by identifying minerals free of charge. The experience of the Mines Department in its policy of granting financial aid to mineral propositions, which *prima facie* appeared to have some prospect of becoming a stable industry, has hitherto been disappointing; and the money voted for district development work has in consequence been applied mainly to the construction and repair of roads in mineral localities. This application of the funds has the advantage that if the particular mining venture on behalf of which road making and repair is principally undertaken proves a failure, farming and rural interests benefit and the roads made remain in some respects of permanent use to the district. The Government has also rendered assistance in the direction of the establishment of permanent industries by engaging the services of experts from oversea, who have investigated and reported on the possibilities of iron and petroleum in the Union. The Department has further helped to direct public attention to specific mineral possibilities by the publication of separate memoirs or contributions in official or other publications. In addition, technical advice is given gratis when justifiable and when the interests of private professional consultants are not prejudiced. The following is the official story: The Transvaal Province is predominant in the Union in respect of its mining activities and mineral possibilities, and in consequence is responsible for the receipt of the largest share of the moneys granted for aid. A record of the manner in which the total amount of £5,818 granted up to 1915 by way of assistance was allocated affords some indication of the efforts made outside the Witwatersrand to establish or revive promising mining industries. The exploitation of the refractory ores in the Murchison Range had hitherto suffered, according to the general view, from inaccessibility and lack of water. By the extension of the railway from Komatipoort and its subsequent linking up with the line from Pretoria to the Limpopo River the first difficulty was surmounted. In regard to water supply, ten boreholes with pumps were supplied at various points along the range, and a sum of £1,404 was spent in preliminary investigation, while before embarking on a general scheme, which would have entailed an expenditure estimated at various sums up to £100,000, the Mines Department made an extensive sampling of the range. The results obtained were disappointing on the whole, and are not considered to justify the Government in proceeding with a big water scheme. One of the pioneer companies of the district made application for financial assistance in connection with a new process for the treatment of its antimony ores. As the success or non-success of the process would greatly affect the further development of the gold field a loan of £1,000 with interest at 6 per cent. per annum, repayable out of profits was granted to assist the company over the inevitable initial difficulties. The company was not successful with the process, but a French mining company familiar with the treatment of antimony ores has now taken over the concern. In order to prove or disprove the successful working of alluvial washes in the Barberton district, a sum of £520 was advanced to assist an individual scheme at Fig Tree Creek. The venture was a failure. A small portion of the outlay was recovered from the sale of the plant. To assist in constructing a power line from Vaalhoek to Ledophine, a mining syndicate was advanced an amount of £2,500 at 4 per cent. interest redeemable by annual payments of not less than 5 per cent. of the loan. The syndicate, however, fell into financial difficulties and became unable to meet its obligations in this connection. Eventually a compromise was arrived at, resulting in a loss to the Government of the sum of £1,483, including expenses and unpaid interest. A discovery of coal was made on the farm Vangheining, about 20 miles west by south of Warmbaths, and a grant-in-aid was made for the purpose of sinking a shaft to the seam. The cost was £250, and a fair seam of coal was exposed at a depth of 170 feet. In addition to these efforts to aid mining by direct cash assistance, other methods of a more or less indirect nature have been employed from time to time.

Geology of Coal and Lignite.

The result of recent interesting research (according to an English exchange) proves conclusively that lignite is different in nature from coal, and the latter is of different origin to the former. The opinion of the author of a work on the subject, in brief, as as follows:—The disintegration of the rock masses resulted in the release of great quantities of alkali in solution, which, under favourable conditions, freed the substance which was being converted into coal entirely or partly from the humus-substances. Where the humus was as much removed as is possible by solution, the process of converting the material into coal, probably in conjunction with pressure, resulted in the typical pit coal now known. Where, on the other hand, the humus substance remained in the coal the reulting material became lignite. Therefore coal and lignite have different origins, since the former comes from a substance containing humus and the latter from one without humus, although going back to the earlier stage still the source of coal and lignite would be the same. The theory described above also explains the existence of a material which may be described as something halfway between coal and lignite. The author deals with the data on which his theory is based at considerable length.

SIEMENS BROTHERS

& CO., LIMITED

CABLES
AND
WIRES.

OVERHEAD LINE MATERIAL
AND
EQUIPMENT.

TELEGRAPHS
AND
TELEPHONES.
MANUAL AND AUTOMATIC.

SIGNALLING APPARATUS,
FOR
RAILWAYS, MINES, SHIPS AND POWER STATIONS.

JOINT BOXES
TAPES, COMPOUNDS, CABLE ACCESSORIES, TOOLS, Etc.

PRIMARY BATTERIES
FLUID AND DRY.
Carbons for Battery Making.

HOME BRANCHES:

BIRMINGHAM.—Central House, New Street
BRISTOL.—30, Bridge Street.
CARDIFF.—89, St. Mary Street.
GLASGOW.—66, Waterloo Street.
MANCHESTER.—196, Deansgate.
NEWCASTLE-ON-TYNE.—64-68, Collingwood Buildings
SHEFFIELD.—23, Filey Street.
SOUTHAMPTON.—46, High Street.

INDIAN AND COLONIAL BRANCHES:

CALCUTTA.—Clive Buildings, Clive Street.
BOMBAY.— Rampart Row.
MADRAS.—Smith's Corner, Mount Road.
SINGAPORE.—1, 2, 6 and 9, Winchester House.
CAPE TOWN.—45a, St. George's Street (first floor).
SYDNEY.—42, Bridge Street.
MELBOURNE.—29, William Street.

SIEMENS BROTHERS & Co., Ltd., Woolwich, London, S.E.18

ESTABLISHED 1858. OVER 4,000 EMPLOYEES.

Telephone City 6400 (7 lines). Telegrams: "Siemens, Woolwich"

REPRESENTATIVE IN SOUTH AFRICA:

A. J. G. SIMPSON, A.M.I.E.E.,
P.O. Box 239, CAPE TOWN.

Telephone 1202. Telegrams: "SIEMENS"

The Story of Diamonds.*

THE story of the first discovery—or perhaps it should rather be said, the first identification—of a diamond in South Africa is well known. The date is fixed with sufficient certainty as early in 1867, and the place as De Kalk, the farm of one Daniel Jacobs, in the neighbourhood of the village of Hope Town on the Orange River. The stone, weighing 21¼ carats, appears to have been of exceptionally high quality, and ultimately passed into the hands of Sir Philip Wodehouse, Governor of the Cape, at a price of £500. Discovered by the children of the Jacobs family and passed by their mother to Schalk van Niekerk, a neighbouring farmer, and by him in turn to John O'Reilly, a travelling trader, the diamond finally reached Dr. W. Guybon Atherstone, of Grahamstown, by the ordinary postcart, and, according to the story, in an unsealed envelope. To the latter, then recognised as the foremost mineralogist of the Colony, belongs the chief credit for the developments that followed, though not more because of his unhesitating identification of the stone as a diamond, than for the quiet assurance and persistence with which he urged systematic search, and predicted further finds, at a time when there was still much scepticism as to further possibilities. With Dr. Atherstone's name that of Mr. Lorenzo Boyes, at the time Acting Civil Commissioner at Colesberg, is to be honourably associated

A period of ten months is said to have elapsed before another diamond was discovered, but before the end of 1868 it is certain that several stones had been found, both on the banks of the Orange River and on those of the Vaal, to which the search had gradually extended. All previous finds were completely eclipsed by the discovery in March, 1869, on the farm Sandfontein, near the Orange River, of the magnificent stone afterwards known as the "Star of South Africa." This diamond weighed 83½ carats, and ultimately became the property of Lord Dudley, at a price, it is said, of £25,000.

Up till the end of 1869 all discoveries had resulted from the desultory picking over of the gravels along the rivers, and nothing had yet been attempted in the way of systematic search by any sort of treatment of the ground. The first start in this direction was made by a party organised in Pietermaritzburg, Natal. This party, which was joined subsequently by some Australian miners, more or less experienced in the working of alluvial, started work at Hebron, but meeting with no success there moved on after a time to Klipdritt, now Barkly West. It was at the latter place, after some days of fruitless toil, that at least one small diamond was recovered from one of the cradles. This little encouragement urged to further efforts, which were rewarded, after a further interval of blanks, by the discovery of the rich ground afterwards known as Natal Kopje. The recovery of this first small diamond at Klipdrift, on the 7th January, 1870, really marks the start of the diamond industry of South Africa.

The mining of alluvial ground was soon to drop into comparative insignificance in face of the discovery of the great diamond pipes; but, starting from the camp at Klipdrift, it has persisted and spread up to the present day, having in the meantime contributed about one-tenth of the whole diamond output of South Africa. Relying, to start with, upon the crudest methods of recovery and purely fortuitous discoveries, the industry has gradually reached the position of a comparatively settled one, proceeding on well-established lines of experience, and looking to more or less definite rewards in proportion to energy expended.

The limitations of space prevent more than passing reference to the extraordinary influx of people to the banks of the Vaal previous to, but especially following, the discovery of Natal Kopje. Fortune hunters and adventurers of every description formed a practically endless procession from the coast towns to join the crowds already attracted to the new El Dorado from the surrounding districts. Fifty thousand people are said to have visited the field in the first year; but, with a population of so floating a character, it was not possible to estimate how many actually settled down. For the same reason, it is impossible to enter into the social and political difficulties that attended the establishment of the new communities. As regards the latter, the most serious was the settlement of the conflicting claims laid to this now valuable area by the Transvaal and Orange Free State Republics, as well as by the English Government. These were finally settled in favour of the last, in October, 1871, and the territory was proclaimed immediately afterwards as the Crown Colony of Griqualand West. The claim of the Orange Free State to the area was, however, felt to be a strong one, and a sum of £90,000 was paid to it by way of compensation.

The developments on the Vaal led to an immense amount of fossicking all over the country, though probably at first only in and about rivers and watercourses, with which, naturally enough, the possible presence of diamonds was then most associated. Thus, we hear of the Pietermaritzburg party, to which reference has been made previously, allowing itself to be deflected on its journey to the new field in order to test the banks of the Vet River in the Orange Free State, and later those of the Vaal at Bloemhof. It was probably in this way that Jagersfontein—placed by Mr. Gardner Williams as first in point of time of the great mines—came to be discovered; for it was in a watercourse, proved afterwards to cross the pipe, that one De Klerk started to prospect in August, 1870, with the result that he shortly found a

THE . . .
BRITISH MANNESMANN TUBE CO., LTD.

Specialists in

BOILER TUBES AND WELDLESS STEEL TUBES FOR ALL TUBULAR CONSTRUCTIONS.

Also

ELECTRIC TRACTION & TRANSMISSION, LIGHTING, TELEGRAPH & TELEPHONE POLES, KAY TOWERS, COILS, SPIRALS, WELL BORING TUBES AND ALL CLASSES OF PIPING FOR WATER MAINS AND IRRIGATION PURPOSES.

Sole S.A. Agents:

ALLEN, WACK & SHEPHERD, LTD.
Barsdorf's Buildings, Marshall Street,
JOHANNESBURG.

P.O. Box 4047. Telegrams: "THAINE."

---

* By G. E. B. Frood, M.A., M.I.M.M., Inspector of Mines, Bloemfontein, and T. G. Trevor, A.R.S.M., F.G.S., Inspector of Mines, Pretoria, in the Union Year Book.

fine stone of fifty carats. The claims of priority of discovery made for Jagersfontein are disputed, however, on behalf of both Dutoitspan and Bultfontein. As regards the former of these, diamonds were found there as early as September, 1870, so that the loss of priority as against Jagersfontein can only have been a matter of days. But in any case, according to the testimony of Mr. David Draper, the claims of both Jagersfontein and Dutoitspan may have to yield to those of Bultfontein, as that gentleman states that, to his personal knowledge, the then owner of Bultfontein was able, on the 6th November, 1869, to produce, amongst other stones, a small diamond as found by him on his farm. Certain it is that the farm in question actually changed hands on the prospects thus afforded, on the 16th of the same month. Apart from the question of discovery, however, Dutoitspan was undoubtedly the first of the great Kimberley group of mines to develop as a regular diggings, whilst Bultfontein for a time only attracted the overflow of diggers and fossickers from the farm Dorstfontein, on which the former mine was situated. In point of fact, no find of any importance was made on the farm Bultfontein till early in 1871, the ground there being opened up and rushed in March of that year. Next followed the discoveries of the two great mines, known later as De Beers and Kimberley, in May and July respectively of 1871. Of the other mines, which have remained consistent producers, Koffiefontein came into the field as early as 1875, and Wesselton (known originally as the Premier) in 1890. The Premier, the great Transvaal mine, had been discovered some time previous to 1902, but possession was only obtained from the owner of the farm in December of that year. The group of small but rich mines in the Boshof district of the Orange Free State, known as the Roberts-Victor, Blaauwbosch, and New Eland, were proclaimed in 1906, 1910, and 1912 respectively.

Of the many other mines that have been discovered, some are claimed to be payable under favourable working conditions, and some have been proved to be on the verge of payability, but at least 80 per cent. have been found hopelessly poor.

Diamondiferous occurrences are spread over a large area, but have an apparent tendency to cluster, the chief centres being Barkly West and Kimberley in the Cape Province, Boshof, Koffiefontein, Jagersfontein, Kroonstad, and Theunissen in the Orange Free State, and the Premier Mine in the Transvaal.

Altogether, considerably over 250 occurrences* of Kimberlite (by which general term the rock of the diamond mines is now commonly known) have been located in South Africa, including Rhodesia, South-West Africa, and the Belgian Congo, all of which, however, are confined to the South African plateau. No payable mine has been discovered north of the Premier Mine.

Much the most important development since the original opening up of the mines of the Kimberley group has been the discovery, already alluded to, of the great Premier Mine, which lies about twenty miles east-north-east of Pretoria. The pipe is roughly an oval, 2,900 feet long by 1,500 feet across, giving an area of nearly 8 acres, or 3,570 claims. The enormous surface extension thus represented, as compared with other pipes, will be realised from the consideration that it amounts to only a hundred claims less than that of the three largest mines of the Kimberley group together. Down to the present depth of the working, the walls are practically perpendicular, and have shown no disposition to cave. In normal times before the War, the mine employed some 900 white men and 12,000 natives, and the rate of working amounted to 36,000 loads (each 16 cubic feet) daily, or over ten million loads per annum. Notwithstanding this enormous output and also the fact that considerable bodies of floating reef have had to be dealt with, the depth of the working, which is now some 400 feet, only increases at the rate of about 37 feet per annum, thus giving promise that work may be continued in the open for at least another twelve years to come.†

---

* Wagner "The Diamond Fields of Southern Africa." 1914

† Indebtedness is acknowledged to Mr. Gardner Williams' work, "The Diamond Mines of South Africa" (Macmillan, 1902), for various points in the early history of the diamond industry.

C. D. LUCAS
and
B. E. WOLFE
Mining Engineers.

Offices & Lecture Rooms,
Permanent Buildings,
Postal Address : Box 6301.

TUTORIAL FACTS AND FIGURES.

MANAGERS. Last three Managers Examinations we lead with passes. January and May Examinations combined we secured **15** passes from **19** entries. **A remarkable record.**

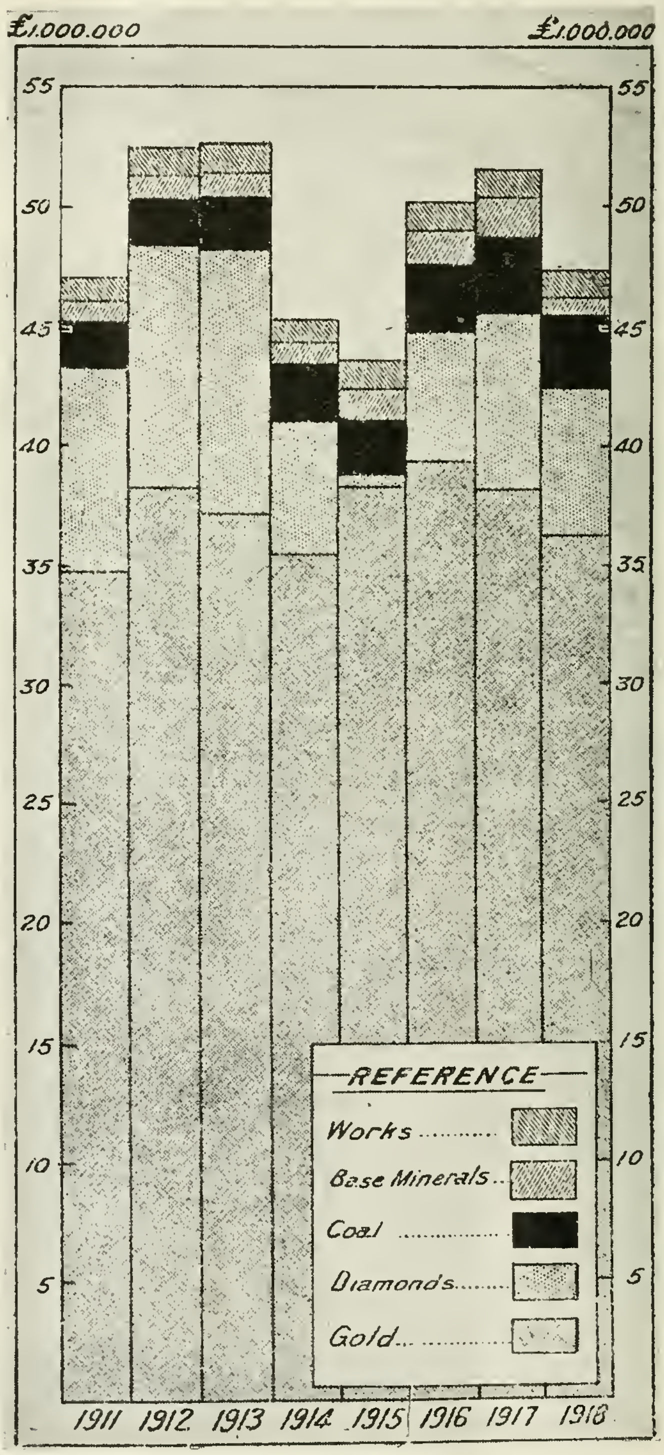
SURVEYORS. We have obtained **47** Survey Certificates and **6** conditional passes **to date.** Elsewhere **2** Survey Certificates and **3** conditional passes have been obtained to date.

OVERSEERS. We lead with passes 1918 and 1919 combined. To date our passes 1920 = **90%**.

Preliminary SURVEY. The majority of the Asst. Surveyors working in the mines have been trained by us.

WRITE FOR PARTICULARS AND CLASS TIME TABLE.

CHART SHOWING VALUE OFMINERAL PRODUCTION, UNION, 1911 TO 1918.



The Fluctuations in Silver.

QUESTION OF SUPPLY AND DEMAND—UNFITNESS AS A MONETARY STANDARD.

The unprecedented movements in the price of silver during the past five months, and especially within the past twelve months, in which silver quotations have fluctuated more than 100 per cent. and 70 per cent. in the London and New York markets respectively, are charged with a significance which is to be measured by its bearing on silver as an industrial commodity and in its relation to the subsidiary coinage of the world.

Prior to 1873 the result of the readiness of the mints of most countries to receive silver in any quantity at its coinage value gave the metal a relatively fixed price, which no commodity but gold now enjoys, but within the past half-century silver has almost everywhere ceased to be a standard money metal and its market has been governed by conditions of demand and supply such as affect the market for any ordinary and non-monetary commodity. Since the beginning of the War the price of silver has risen with other prices, while during the same period the total production of the metal has experienced a marked decline.

Demand Exceeds Supply.

With reference to the world's demand for silver, the amount of definite information is limited. Estimates of total annual requirements have been placed as high as two or three times the annual output, but these must be regarded as having reference to potential demands rather than to actualities. Even the annual volume of requirements for both standard and subsidiary coins, which have long been the principal factor in the demand, cannot be accurately stated, since the published figures for the world's coinage include re-coinage and do not therefore represent the consumption of new silver.

During the War and for some time thereafter the demand for subsidiary silver coins greatly increased. The Allied countries, particularly, found it necessary to make heavy purchases for these purposes. In some countries the pre-War supplies of coin have been largely dissipated, as in France, where it is said that the *per capita* stock of silver money in 1918 was only one-sixth of the pre-War average, in spite of progressive increases during the War in the amount of the annual silver coinage. To make good the deficiency of small change resort was had in various countries to postage stamps, small notes and coins of nickel, copper, zinc and iron. As a result of these developments the demand for metal for coinage purposes slackened, and to-day the dependence of the world on silver for coins is less widespread than it was.

Decreased Mexican Output.

An important factor in the high price of silver, to which the National Bank of Commerce in New York refers in an article on the subject in the August issue of *Commerce Monthly*, was the sharp decline in the world's annual output, which may be traced directly to Mexico, where production fell off from 71,000,000 ounces in 1913 to 28,000,000 ounces in 1914. The decline in the Mexican output seems to have been due entirely to political disturbances which began in 1913 and which have continued to restrict activity in mining as in other industries. There is no evidence that the mines in Mexico are becoming naturally less productive, and there is every reason to believe that the Mexican output, once the political atmosphere has been cleared, will be at least as large as before.

Future Price.

In discussing the probable future price of silver, the National Bank of Commerce points out that the result of the purchase provisions of the Pittman Act and of the Mint regulations is to establish two separate and distinct markets and quotations for silver. In the United States domestic commercial silver .999 fine is virtually pegged at 99½ cents. If the price for foreign silver should rise above $1.00 per oz. Treasury purchases would automatically cease. But the price would probably not get much above $1.00. The annual output of the United States is about one-third that of the entire world, and a price materially above $1.00 would add this amount to market supply, increasing it possibly by one-half. It would therefore seem that the price could at most rule only fractionally higher than the Pittman Law figure, unless it is to be supposed that demand and supply should both be as abnormal as during the War period.

Silver as a Standard.

It has frequently been asserted that a greater use of silver as standard or redemption money would be inevitable as a means of stabilising inflated paper currencies, particularly in view of the decline of gold production. But it is apparent that if new silver is to be relied on for this purpose, it will be many years before adequate reserves for existing issues can be accumulated. Unless the price of silver goes above $1.00 per fine ounce or the purchase clause of the Pittman Act is repealed, the output of the United States will not for at least three years be available for these reserves. If silver is so used, either it must be adopted by some countries as the exclusive monetary standard or a legal ratio between the values of gold and silver must be settled upon. Either alternative involves the question of bi-metallism. A return to bi-metallism would in all probability mean a return to an alternating standard, now of gold, now of silver, such as the world sought relief from when it chose gold as the more stable monetary standard.

The adoption of a single silver standard by some countries while other important commercial nations use gold would result in giving the foreign exchanges with the silver countries a fluctuating par of exchange such as China now has. The conduct of international business would thereby be interfered with rather than facilitated, and the proposal is obviously undesirable.

SOUTHERN VAN RYN

Some good reasons for investing in this great OUTCROP mine on the Van Ryn and Nigel Reefs :—

(1) The Mine is unique in the world's greatest goldfield.
(2) 2,146 Gold Claims entirely owned by Shareholders—no Government share of profits to pay.
(3) Over £40,000 cash in hand and new working capital continually being paid in.
(4) £50,000 worth of plant, equipment and stores all paid for.—No debentures and no debts.
(5) Two pay reefs to draw from, whose steep dip means large tonnages and cheap mining. The Nigel Company earned nearly a million profit on the Nigel Reef alone, from about one eighth of the number of claims on the Nigel Reef owned by Southern Van Ryn.
(6) Will begin gold production in October from the 30,000 tons of pay reef already developed.
(7) 5,000,000 tons of good coal on the property, which can be mined at 3s. per ton. This coal is already supplying power to the gold mine, and is alone worth more than the Company's capital.

Buy while the market is low for the rise which is coming; or, better still, buy to hold for dividends, in

THE COMING GREAT MINE OF THE FAR EAST RAND!

For further particulars write or apply to the Managing Director, Mr. W. E. BLELOCH, 3, Transvaal Bank Buildings, Fox Street, Johannesburg.

The Outlook for Swaziland Tin.

The directors' report on Swaziland Tin states: The working profit for the year was £19,935 2s. 11d., to which must be added the sum of £534 0s. 4d. derived from township revenue, interest and sundry revenue. After providing for base metal royalty and taxation a net amount of £18,199 12s. 7d. remained to be transferred to appropriation account. Adding the balance of £22,687 9s. 8d. brought forward from the previous financial year, and funds transferred £1,489 14s. 2d., this account showed a total of £42,376 16s. 5d., which has been dealt with as follows: Dividends Nos. 25 and 26 of 7½ per cent. and 10 per cent. respectively, £14,350; balance carried forward, represented by cash and cash assets, less liabilities, £28,026 16s. 5d. The working expenditure and revenue account for the year was as follows: Revenue: 297·45 tons of tin concentrate, £57,120 2s. 7d. Expenditure: Mine, £31,224 8s. 9d.; head office, £3,498 11s. 1d.; export charges, £2,461 19s. 10d.; working profit, £19,935 2s. 11d. The unsold concentrate at the close of the financial year has been taken into the books on the usual conservative basis. The excess profit tax remained in force until the 30th June, 1920, and involved a liability of approximately £1,240 for the financial year. With the lapsing of this tax it has been notified that the Swaziland Administration intends to introduce some new form of direct taxation. It is to be hoped that the incidence of the new taxaion will be of a more equitable nature than that of the excess profit tax.

The manager's report says, inter alia: The working profit for the year is £4,339 17s. 5d. higher than that of the previous year. The amount of ground treated during the year was 133,625 cubic yards less than during the previous year, the decrease being accounted for as under: (a) The finishing off of ground in Flats A, B and B1, which necessitated frequent shifting of the pumps, also the rocky nature of ground encountered. (b) The employment of one overseer and some 75 natives on construction of water races, etc., for portion of the year. (c) Loss of cutting time during the change over from gravel pumps to hydraulic elevators. A comparison of the year's results with those of the two previous years is as follows: Cubic yards treated during year: 1919-20, 957,906; 1918-19, 1,091,531; 1917-18, 1,125,441. Cubic yards treated, average per month: 1919-20, 79,826; 1918-19, 90,961; 1917-18, 93.787. Pounds concentrate recovered per cubic yard: 1919-20, 0·695; 1918-19, 0·75; 1917-18, 0·846. Grade of concentrate per cent. metallic tin: 1919-20, 70·6; 1918-19, 70·7; 1917-18, 70·8. Pounds metallic tin per cubic yard: 1919-20, 0·491; 1918-19, 0·531; 1917-18, 0·600. Average value realised per cubic yard: 1919-20, 13·694d.; 1918-19, 11·683d.; 1917-18, 17·256d. Average cost per cubic yard: 1919-20, 8·700d.; 1918-19, 8·254d.; 1917-18, 7·557d. Average profit per cubic yard: 1919-20, 4·994d.; 1918-19, 3·429d.; 1917-18, 9·699d. Average metal price realised per ton; 1919-20, £299¼775; 1918-19, £241·055; 1917-18, £301·461. The costs given include all general charges and head office expenses. The working costs show an increase of 0·446d. per cubic yard. The increase is due to high cost of treating rocky ground in No. 1 pump workings, tough hard clay ground in No. 3 pump workings and the initial cost of installing hydraulic elevators in the Lower Mbabane. The main hydro-electric plant ran 98·5 per cent. of possible running time, generating 719,089 units at a cost of 0·265d. per unit. The Foy's power plant ran for one and a half months only, and was then shut down as work was stopped in Alice Creek area. Nos. 1 and 2 gravel pumps ran 5,157 and 6,134 hours respectively, and were closed down on the 16th April and the 6th June, having completed all ground to be elevated in the area in which they were working. No. 3 pump ran 7,080 hours, being 80 per cent. of full possible running time. This pump was shut down at the end of June. The three pumps elevated on an average 24·2 cubic yards per hour to a height of 35·6 feet. The total amount of ground removed by these pumps was 444,893 cubic yards. The pressure pump ran for a month and a half in Alice Creek area, where ground was shallow and low grade. The plant was shut down on 18th August. Three hydraulic elevators were used during the year, lifting 178,566 cubic yards to a height of 17·46 feet The new 8 inch elevators installed in the Lower Mbabane and Block E workings are lifting on an average 19·7 cubic yards per hour to a height of 28 feet. All installation costs are included, hence high working costs shown per cubic yard on Lower Mbabane. The new Kapaula race provides a large volume of high pressure water available for all the lower workings where the bulk of our reserves now lie. For this reason it was decided that as soon as Flats A, B and B1 were exhausted, gravel pump work should be discontinued and hydraulic elevators substituted. Where the required quantity of water under good pressure is available, hydraulic elevators are to be preferred to gravel pumps for, although the mechanical efficiency is not so high, the running costs and general maintenance are lower. The change-over has been effected and has been fully justified by the results obtained. Five creeks were worked hydraulically during the year, accounting for 62,953 cubic yards at a cost of 6·267d. per cubic yard. 264,332 cubic yards ground sluicing and handwork were removed from different areas where no pressure water was available. The total yardage was therefore accounted for as under: Hydraulicking and gravel pumping, 444,893 cubic yards, equal to 46·44 per cent. of a total cost of 9·436d. per cubic yard; hydraulicking and hydraulic elevator, 178.566 cubic yards, equal to 18·64 per cent. of total at a total cost of 9·895d. per cubic yard; total ground cut and elevated, 623,459 cubic yards, equal to 65·08 per cent. of total at a total cost of 9·567d. per cubic yard; hydraulicking, 62,953 cubic yards, equal to 6·57 per cent. of total at a total cost of 6·2267d. per cubic yard; ground sluicing and handwork, 264,332 cubic yards, equal to 27·60 per cent. of total at a total cost of 7·140d. per cubic yard; nozzle pumping, 7,162 cubic yards, equal to 7·5 per cent. of total at a total cost of 11·924d. per cubic yard; total ground cut but not elevated, 334,447 cubic yards, equal to 34·92 per cent. of total at a total cost of 7·07d. per cube yard; grand total, 957,906 cubic yards, equal to 100·00 per cent. of total at a total cost of 8·700d. per cubic yard. The above costs include all head office expenses. The concentrate recovered from the Lower Mbabane Valley contained a large percentage of ilmenite, so that the net recovery of clean concentrate, after dressing, was approximately 8 per cent. lower than for the previous year. The capacity of the magnetic separator has been increased by the addition of a third pole, to enable it to cope with the larger quantity of impurities. During the year 712,827 cubic yards were cut from the reserves as at the 30th June, 1919, the remaining 245,079 cubic yards being obtained from ground outside the proved reserves which was found payable to work, the bulk of the excess cut being from Mbabane Flat A and Terrace. In consequence of the poor results obtained from further re-valuation work, principally in Stable and Alice Creek areas, 510,880 cubic yards have been excluded from ground in reserve; the ground being unpayable under existing conditions. With any appreciable improvement in the price of metal or decrease in production costs, a portion of this ground could be restored to the reserves. An additional area of 358,066 cubic yards has been proved during the year of a value of 0·755 lb. metallic tin per cubic yard. The reserves at the 30th June, 1920, stood at 1,914,177 cubic yards of an estimated average value of 0·589 lb. metallic tin per cubic yard as against 2,779,818 cubic yards of an estimated average value of 0·588 lb. metallic tin per cubic yard at the 30th June, 1919. A large area in the lower flats still remains to be tested. 10,482 feet were drilled at a cost of 15·5 pence per foot. £264 2s. 5d. were spent on further prospecting and creek valuation. rilling is now being carried prospecting and creek valuation. Drilling is now being carried on in the Lower Mbabane Valley.

Red Cross: A World Appeal for Eastern Europe.

THE distress caused by the War in the countries of Eastern Europe has now reached appalling proportions. Disease is rampant among the War-worn and underfed nations of Central and Eastern Europe. Men, women, and children are dying by thousands, and in vast civilised areas there are neither medical appliances nor medical skill sufficient to cope with these horrors. We in South Africa can hardly realise the extent of the calamity, but there is absolutely no exaggeration in the above statements as evidenced by the following cables recently received by the South African Red Cross Society from Sir David Henderson, Director-General of the League of Red Cross Societies:—

> " Referring to the resolution passed by the First General Council of the League of Red Cross Societies held at Geneva in March last (at which 27 National Red Cross Societies were represented, together with representatives of the League of Nations and the International Red Cross Committee) in response to a letter received from the President of the Council of the League of Nations, concerning the distress caused by epidemics and disease following the ravages of War in Eastern Europe, a pledge was given by the League of Red Cross Societies that it would issue a universal appeal through its member societies for funds, medical supplies and personnel.
>
> " The League of Nations assures us that the requirements of the resolution as to the supply of food, clothing and transportation, are being fulfilled, and it is now calling upon the League of Red Cross Societies to act and to formulate its plans for the immediate extension of voluntary relief within the affected districts.
>
> " Our plans are now being formulated, and a specified appeal is being mailed to you soon.
>
> " In emphasising the duty imposed upon member societies to support this appeal the administration of the League of Red Cross Societies counts upon your undivided support."
>
> " With reference to my previous cable concerning our appeal on behalf of the stricken districts of Eastern Europe, the Imperial War Relief Fund to combat disease and distress in the war-stricken areas of Europe and Asia, has agreed to give the League of Red Cross Societies all funds not specifically earmarked for other purposes. The League of Red Cross Societies therefore urges all Red Cross Societies in the British Empire to strongly support and join in the Imperial Fund appeal thereby fulfilling the requirements of the financial appeal which is being issued under the terms of the resolution adopted by the General Council in March last."

Furthermore, we quote from a letter addressed to the League of Red Cross Societies by the President of the Council of the League of Nations, which reads as follows:—

> " The catastrophe is of such unexampled magnitude that no organisation less powerful than the League of Red Cross Societies seems adequate to cope with it. To this great body I therefore make appeal."

The Council of the South African Red Cross Society considered these appeals and other evidence placed before it by the League of Red Cross Societies, and is satisfied that the calamity is of appalling magnitude and the need for help extremely urgent. The Council, therefore, decided to form a joint committee with representative nationals of the various countries of Central and Eastern Europe, who are hereby requested to communicate immediately with the Secretary, Mr. Fred Rowland, O.B.E., P.O. Box 3266, Johannesburg, and to collect funds to be forwarded to the League of Red Cross Societies for the relief of Eastern Europe. The Council appeals to the citizens of South Africa to give generously to this worthy cause, and feels sure that liberal support will be given. As the matter is of such great urgency, it has been decided to issue this appeal for funds prior to completing the full organisation, and subscriptions may be, for the present, sent to the Honorary Treasurer of the Red Cross Society, Mr. John Munro, P.O. Box 3266, Johannesburg.

There are many people on the Witwatersrand particularly whose old homes were in Eastern Europe. To these we especially appeal for donations and also for help in organising the campaign for funds. Any interested are requested to communicate with Mr. Fred Rowland at the above address.

OUR SPECIALITY!
(NOT TO BE BEATEN).

MAGNETOS
! F. HOPPERT. !
MAGNETOS

Good stocks always on hand; Bosch Magnetos a speciality; Repairs to all — makes of Magnetos and Ignitions. —

86, Marshall St., c/o Simmonds St.,
JOHANNESBURG:
Box 3503. Tel. Address: " MAGNETOS." 'Phone 3130.

"SOLID" BRAND
HACK SAW BLADES

Prices on application to the
SOLE DISTRIBUTORS:

PHOENIX TRADING CO.
GRANT HOUSE, HARRISON STREET,
JOHANNESBURG.
P.O. Box 2273. 'Phone No. 3175.
Telegrams: "FEARNIX," Johannesburg.

HADFIELDS LTD.

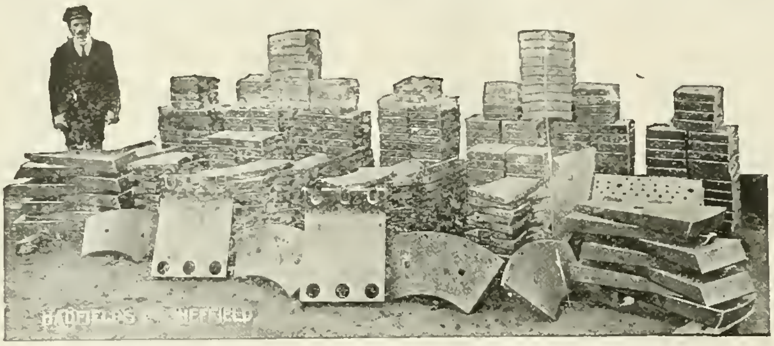
ERA
Trade Mark.

SOLE MAKERS OF HADFIELD'S PATENT
MANGANESE STEEL

The Supreme Material for the Wearing Parts of Stone Breaking and Ore Crushing Machinery, etc.

Complete
Stone Breaking
and
Ore Crushing
Plants.

Steel
Castings
and
Forgings
of all descriptions.



Group of Hadfield's Patent "ERA" Manganese Steel & Hadfield's "CHROME" Steel Wearing Parts for Ball Mills and Tube Mills.

Mining Requisites of all kinds, Grizzley Bars, Shoes & Dies, Steel Wheels & Axles, Balls for Ball Mills, etc.

Head Office for South Africa:
46 & 47, CULLINAN BUILDINGS,
JOHANNESBURG.
'Phone 5900. Tel. Add.: "Hecla."

Bulawayo Agents:
WHITMORE & JACKSON,
17 & 18, Agency Chambers.

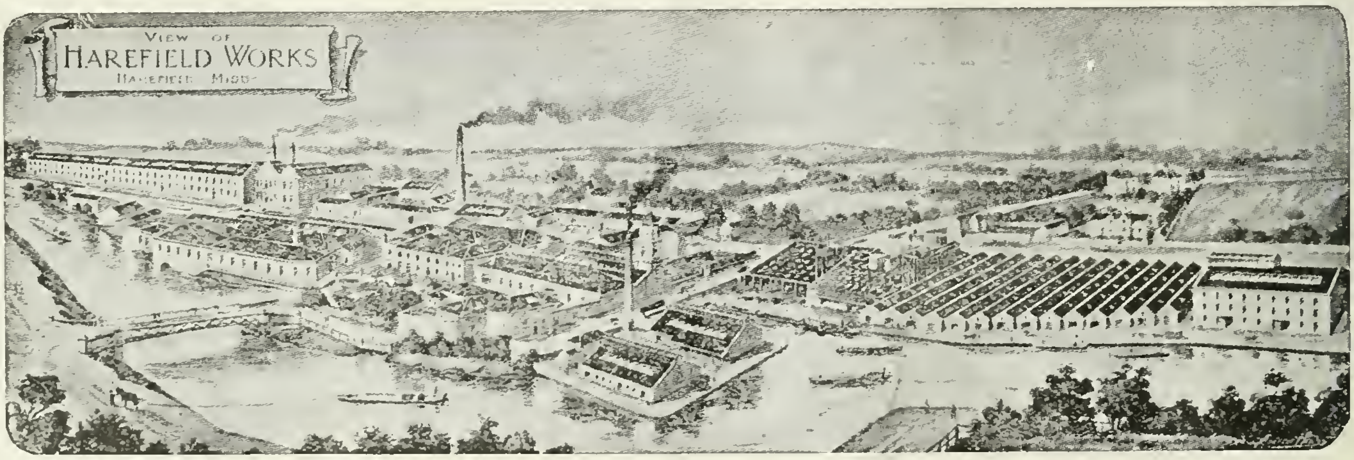
Salisbury Agents:
P. PEECH & CO.,
Angwa Street.

Natal Agents:
THOMAS BARLOW & SONS (S.A.)
Limited.
Smith Street, Durban.

United Asbestos African Agency,
LIMITED.

Telephone No, 345, Central. 24-26, CHORLTON CHAMBERS, HARRISON ST., JOHANNESBURG. P.O. Box 2642

SOLE AGENTS IN SOUTH AFRICA FOR
BELL'S UNITED ASBESTOS CO., LTD.
(OLDEST ASBESTOS MANUFACTURERS IN THE WORLD),



VIEW OF GENERAL ASBESTOS WORKS, HAREFIELD, MIDDLESEX.

"GLADIATOR" ASBESTOS CEMENT BUILDING MATERIALS.

Over 170 million square feet of "Gladiator" Building Material supplied the British Government during the War for Army Hutments, Hospitals, Aerodromes, Munition Factories and the like.—Enquiries invited.

The Mineral Production of the Emprie.

By Frank Merricks, C.B.E.

Tin.

About one-half of the world's supplies of tin are mined in the British Empire, the chief producing country since 1891 being the Federated Malay States. The other tin-producing countries of the Empire are Cornwall, Nigeria, Australia, and South Africa.

The principal foreign tin-producing countries are Bolivia, the islands of Banka and Billiton in the Netherlands East Indies, Siam, and China.

Prior to 1891, the tin output of the Empire was confined to Australia, British Malaya, and Cornwall, the value of the Australian production being £9,879,539, while that of British Malaya was estimated at £5,100,000. The value of the Nigerian output is becoming important, and to-day exceeds that of Australia.

The output of tin in British Malaya has fallen during the last few years, and in 1919 amounted to only 36,867 tons, as against nearly 50,000 tons in 1914. Simultaneously, tin production in Bolivia, Siam, and China has increased, so that the proportion of the world's tin supplies produced in the British Empire is not so large as it was until quite recently. The Empire's tin output, however, is still more than ample for her own needs, and must also be drawn upon by other countries that are large users of this metal.

Most of the tin mined in British Malaya is refined in the smelters of the Straits Trading Co., at Singapore. These tin smelting plants are the largest in the world, and deal not only with the produce of the F.M.S., but also with ore shipped to Singapore from Siam, the Netherlands East Indies, South Africa, and Australia.

The exports of tin from Singapore are consequently much greater than the actual production of British Malaya.

In Nigeria, the existence of tin on the Bauchi plateau was known to the natives long before the arrival of the British, while it became known to Europeans as long ago as 1885, at which date, however, the country was too unsettled for prospecting. An official mineral survey was undertaken in 1903; tin mining was started in 1906; exports of tin concentrate were first recorded in 1907, and in 1918, 82 tin mining companies were operating in the northern provinces of Nigeria, mostly on the Bauchi plateau. Up to the present, the highest recorded export tonnage for any year is 9,965 long tons of ore in 1917, the figure for 1918 being 8,294 tons.

In Australia, Tasmania is the largest producer of tin, followed by New South Wales and Queensland, whilst small quantities are obtained in Victoria and in the Northern Territory. A large proportion of the output in New South Wales is won by dredging in the Tingha, Emmaville, and Glen Nines divisions.

Bolivia is the second largest tin-producing country in the world. Before the War, most of her output of "barilla," or tin concentrates, containing 60 to 65 per cent. of tin, went partly to Germany and partly to the United Kingdom for smelting. In 1919, over 27,000 tons of tin ore were imported into this country from South America, the average annual output of which is about 23,000 tons.

The production of tin ore in Siam is advancing, the average annual output being about 8,300 tons. The ore is sent to Singapore for smelting, and the product comes into commerce as "Straits" tin.

China's production is also reported to have increased considerably in recent years. The chief locality of production is Kochin, about 22 miles from the French railway from Yunnan to Haiphong. The ore is smelted mainly in native furnaces to a metal of about 90 per cent. to 92 per cent. purity, and is then sent to Hong Kong, where it is refined, part of the product being returned to China for consumption there, and the remainder being exported.

It will thus be seen not only that the British Empire produces a very high percentage of the world's output of tin ore, but that still larger tonnages of tin ore and crude tin produced in foreign countries are smelted and refined in British territory.

Nickel.

At least 85 per cent. of the world's supply of nickel is produced from Canadian ores. The only other producers of importance are New Caledonia and Norway. During the War, the output in New Caledonia declined very seriously, and the proportion now represented by Canada's contribution is possibly higher than that stated.

The nickel content of the matte smelted from the nickel-copper ores of the Sudbury district of Ontario, where the most valuable nickeliferous deposits hitherto discovered occur, has risen from 2,000 short tons in 1893 to 3,500 short tons in 1900, 18,600 short tons in 1910, 25,000 short tons in 1913, and 46,000 short tons in 1918, the respective values

---

* Presidential Address to the members of the Institution of Mining and Metallurgy on April 15, 1920.

P.O. Box 3807.

ROCKWOOD PRESSED STEEL UNIONS

H. ALERS HANKEY - - - Sole Agent.

ALLEN, WACK & SHEPHERD, LTD.

Deals, Flooring Boards, Ceilings, Wire Nails, Galvanised Iron; also "Murite" and "Durite" Cold Water Paints and all classes of Building Materials.

Vendors of High Grade Oils and Greases.

Head Office

BARSDORF'S BUILDINGS

MARSHALL STREET,

Box 4047. Telegrams: "Thaine."

JOHANNESBURG.

being £431,500, £693,300, £2,329,500, and £7,700,000. Up to quite recently, the nickel-copper ores of Sudbury were smelted in Canada to a matte, containing, roughly, 80 per cent. of the combined metals, which was shipped abroad, for refining, partly to South Wales, but mostly to New Jersey, U.S.A. For many years there was an agitation for the establishment of a nickel refining industry in the Dominion, and in 1915 the Royal Ontario Nickel Commission was appointed to enquire into the whole subject, with the satisfactory result that the refining of nickel is now being conducted in the Dominion on an increasingly large scale.

The Ontario Nickel Commission reported that the nickel ore deposits of Ontario were much more extensive and offered better facilities for the production of the metal at a low cost than did those of any other country. They found that the most satisfactory method for refining nickel in Ontario was the electrolytic process, in view of the facts that abundant hydro-electric power was cheaply available, that practically no chemicals were required for the process, and that there was a much more complete saving of the precious metals contained in the matte, especially platinum and palladium.

The Commission also reported that the proved ore of the Sudbury area might be conservatively estimated at 70,000,000 tons, while it was safe to say that the probable and possible ore supply exceeded 150,000,000 tons. The present annual output of nickel ore in Canada is a little over 1,500,000 tons.

The new refinery of the International Nickel Co. at Port Colborne, Ontario, started operations in July, 1918. The British America Nickel Corporation has also established a refinery plant in Ontario. Canada is, therefore, not only the world's largest producer of nickel ore and matte at the present time, but is being placed in a position to become the greatest refiner of nickel.

Low-grade deposits of nickel ore occur in Cuba, and it is reported that a hydro-electric smelter is to be erected for their treatment locally.

National Trading Co.,
54-58, CULLINAN BUILDINGS,
JOHANNESBURG.
Box 2762. Telegrams: "Gloria."

STOCKS OF

SHOVELS and SPADES.
DRILL STEEL.
RUBBER CONVEYOR BELTING.
LEATHER, BALATA and RUBBER DRIVING BELTS.
"PIONEER" and "FISHBRAND" OILSKIN SUITS.
WIRE ROPES.
OXY-ACETYLENE WELDING and CUTTING PLANTS.
ENGINE and SHEET PACKINGS OF ALL KINDS.

Manganese-Ore.

Small quantities of manganese ore were exported from Australia and New Zealand, probably as ballast in ships carrying wool, prior to 1891, but the manganese industry of these two countries has never been important or continuous. The Australian production, however, will, doubtless, be sufficient to meet for some time to come the demands of the iron and steel works erected, and about to be erected, in the Commonwealth.

Manganese-ore was first produced in India in 1892, and, as the grade was high, the cost of production low, and shipping facilities to England good, the output rapidly increased, reaching a maximum of just over 900,000 tons, valued at £1,800,000 in 1907. Owing to shipping difficulties during the War, the output was greatly reduced, and in 1917 it amounted to only 591,000 tons, valued at £1,400,000, f.o.b. Indian ports, the enhanced price of the ore being directly attributable to the War.

Chromite.

Just before the War, Rhodesia and New Caledonia were the world's chief sources of supply of chrome-ore, with a production of 63,000 tons each in 1913. In the same year India produced over 5,500 tons of high-grade chromite from Baluchistan. The only other foreign producer of any importance was Greece.

The demand for chromite arising out of the War, chiefly for the manufacture of ferro-chrome for use as a steel hardener, has resulted in a very large increase of output in India (to over 57,000 tons in 1918), and has given a new stimulus to production in Canada and the United States, in both of which countries the chromite industry was moribund in 1913. In 1917 the output of chromite in Canada was 37,000 short tons, and in the United States 44,000 short tons.

Rhodesia's output of chromite increased substantially in 1916 and 1917, but fell off by 50 per cent. in 1918 as compared with 1913, owing to the shortage of shipping.

A large increase in the output of chromite in India took place in 1918, when 57,769 tons were produced, as against 27,061 tons in 1917. Before the War the average annual output was only about 6,000 tons, and this went to Germany. Of the production in 1918, 22,944 tons came from Baluchistan and 33,740 tons from Mysore. The large increase in the Mysore output for that year was due to the successful opening up of the Bhairapur deposits.

For many years, up to 1909, a few thousand tons of chromite were annually produced in Canada, in the eastern townships of Quebec Province. From 1910 to 1914 the industry was dormant. Mining was resumed, however, in 1915, and was greatly stimulated by the demand created by the War for this ore, for use as a refractory lining in steel furnaces and in the manufacture of ferro-chrome. The production reached a maximum of 36,725 short tons in 1917, but fell to 21,994 short tons in 1918. A large part of the output went to the United States.

Glynn's Lydenburg.

The following are the particulars of the output for the month of August, 1920, in respect of this company: Tons crushed, 3,800, yielding 1,635 fine ozs.; estimated value of month's output, £8,947; estimated profit for the month, £3,519. The month's results are based on a value of £5 12s. 6d. per fine oz., less realisation charges.

MINES DEPT. EXAMS.—Striking Results.

Managers—32 Certificates (2 Conditional) 1919-20. We lead each year 1912 to 1920 inclusive; our lead in Certificates is 9 to 2; In subject passes 7 to 1. Our passes have attained 100%,

Overseers.—19 Certificates out of the last 22 (3½ months) granted in S.A. Our passes during a recent 6 months (1919/20) were 95%

Surveyors—The only Certificate in South Africa. March 1920; 4 passes (3 conditional) in July, 1920. Over 60 successful candidates have received sectional or other tuition from us,

Mining Institute (Prof. Yates),
St. James' Mansions, Eloff St.

The August Output: Group Returns.

Central Mining/Rand Mines Group.

The following are the results of crushing operations of the Central Mining/Rand Mines companies for the month of August:

Company	Tons crushed.	Yield in Fine Gold Ozs.	Estimated Value.	Estimated Profit.	Estimated Working Costs per Ton.
City Deep	90,500	36,805	£206,105	£73,155	29/ 3
Cons. Main Reef	51,000	17,359	96,509	20,367	29/ 10
Crown Mines ...	185,000	56,962	318,988	97,626	23/ 11
Dur. Rood. Dp.	23,800	7,626	42,708	5,076	31/ 7
East Rand Prop.	129,000	37,530	210,170	38,303	26/ 7
Ferreira Deep ..	33,800	11,438	64,053	22,381	21/ 7
Geldenhuis Dp.	48,500	13,581	76,072	11,862	26/ 5
Knight Central..	26,500	7,610	42,615	8,625	25/ 7
Modder B.	55,000	28,653	160,456	91,758	24/ 11
New Modder ...	85,000	44,309	248,195	151,991	22/ 7
Nourse Mines ..	44,100	13,630	76,172	11,541	29/ 3
Robinson	41,100	8,625	48,301	8,182	19/ 6
Rose Deep	58,000	14,948	83,711	26,218	19/ 9
Village M.R. ...	15,000	4,049	22,677	2,096	27/ 5
Wolhuter	32,200	9,112	51,029	14,461	22/ 8
Village Deep ...	53,300	16,109	90,213	18,469	26/ 11
Modder East ...	20,700	7,323	41,007	6,575	33/ 3
Tls. & averages	992,500	335,672	1,878,981	608,989	25/ 7

Modder East.—Tons transported to Apex 26,310, of which 13,173 from stopes, balance from dumps and development. Costs include 50 per cent. of head office and mine general expenses, also 5s. per ton for development in respect of tonnage stoped. Profit below estimate owing to loss in tonnage due to breakdown three and a half days of power plant and increased costs.

General Note.—The valuation of gold has been taken at £5 12s. 6d., less realisation charges of 6d. per fine ounce.

Albu Group.

The following information is supplied regarding the August operations of the producing mines of the General Mining group:

Company	Tons Crushed.	Cost.	Cost per Ton.	Total Revenue.	Profit.
Aurora West ...	10,400	£14,364	27·62	£15,714	£1,350
Meyer & Charl.	14,300	19,785	27·67	50,990	31,205
New Goch	13,600	15,810	23·25	18,313	2,503
Roodepoort Un.	24,000	25,462	21·22	28,566	3,104
Van Ryn Est...	32,750	39,316	24·01	47,998	8,682
West Rand Cn.	34,000	46,192	27·17	53,220	7,028
	129,050	£160,929	24·91	£214,801	£53,872

In calculating the revenue, gold has been taken at a value of 112s. 6d. per fine ounce, less estimated realisation charges.

Shortage of native labour is adversely affecting all mines of the group.

New Goch.—Working costs include an amount of £2,124 expended in shaft sinking and development.

Consolidated Mines Selection Group.

The following are the results of operations for the month of August:

	Stamps Working.	Tons Milled.	Working Costs per Ton Milled
Brakpan Mines ..	110	52,250	28/ 1·176
Springs Mines	80	41,000	30/ 0·129
Totals and averages	190	93,250	28/ 11·135

	Value of Gold declared.	Yield per Ton.	Working Profit based on standard value of Gold.	Working Profit per Ton.
Brakpan Mines ...	£90,669	34/ 8·471	£17,198	6/ 6·995
Springs Mines ...	80,270	39/ 1·873	18,748	9/ 1·711
Totals & averages	£170,939	36/ 7·950	£35,946	7/ 8·515

	Estimated Premium taking Gold at £5 12s. 6d. per fine oz.	Total Estimated Profit.
Brakpan Mines	£29,469	£46,667
Springs Mines	26,137	44,885
Totals and averages	£55,606	£91,552

Brakpan Mines.—Gold reserve unchanged, 3,724 fine ozs.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs for the month of August, 1920, of the undermentioned companies of the Consolidated Gold Fields Group:

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs	Profit
Simmer and Jack ...	320	7	56,600	12,712	£11,441
Robinson Deep	150	9	55,700	16,770	16,504
Knights Deep	100	11	89,400	16,437	10,398
Sub Nigel	30	2	11,000	6,502	13,172
Totals	900	29	212,700	52,421	£51,515

Gold in Reserve.—Simmer and Jack, 1,500 ozs.; Sub Nigel, 2,560 ozs.; total, 4,060 ozs.

The revenue derived from gold for the month of August is calculated at the rate of £5 12s. 6d. per fine oz., less estimated gold realisation and exchange charges of 1s. 3d., or a net figure of £5 11s. 3d. per fine oz. Reduction in tonnage crushed in case of Simmer and Jack Proprietary Mines, Ltd., and Knights Deep, Ltd., is due to the week-end strike.

NOTICE.
PHOENIX PIPE AND METAL COMPANY
No. 6, LONDON HOUSE, LOVEDAY ST., JOHANNESBURG.
PIPING, ½in. to 16in., in Steam, Black and Galvanized.
VALVES, all kinds and sizes, also all Pipe Fittings.
CORRUGATED IRON, FENCING MATERIAL, TRUCKS, RAILS, ETC., AND GENERAL MACHINERY.
We carry large stocks of the above, in both new and second-hand, and solicit your enquiries.
TELEPHONE 1801, CENTRAL.

TRADE MARK
MAGNOLIA
ANTIFRICTION METAL
"FLOWER" BRAND.

HAS THE LOWEST CO-EFFICIENT OF FRICTION.
KEEPS down the bill for lubricants, making BEARINGS smooth as glass and keeping them COOL under heaviest pressures and highest speeds.
Manufactured and Sold By—
THE MAGNOLIA ANTI-FRICTION
METAL CO. OF GREAT BRITAIN, LIMITED,
49, QUEEN VICTORIA STREET, LONDON, E.C.
Agents for South Africa: FRASER & CHALMERS, Ltd, Johannesburg
Bulawayo and Salisbury.

Barnato Group.

The results of operations of the Barnato group for August are as follow:

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	11,000	£69,022
Government Areas	200	128,000	278,456
Langlaagte Estate	200	12,500	71,966
New Primrose	110	20,500	22,851
New Unified	60	11,100	15,853
Randfontein Central	600	125,000	186,337
Van Ryn Deep	90	47,850	150,175
Witwatersrand	215	55,350	57,084
Totals and averages ...	1,575	454,300	£851,744
July totals	1,575	512,100	£857,782

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ...	£51,148	23·249	£18,110
Government Areas	138,484	21·638	140,700
Langlaagte Estate	51,949	24·447	20,210
New Primrose	20,457	19·957	2,512
New Unified	11,818	21·293	4,243
Randfontein Central	167,264	26·762	20,298
Van Ryn Deep	63,053	26·355	88,218
Witwatersrand	43,174	24·427	15,577
Totals and averages ...	£547,347	24·096	£309,868
July totals	£601,035	23·473	£261,913

Note.—The above results are arrived at by calculating the gold at £5 12s. 6d. per fine oz.

Monthly Gross Profits, 1920.—January, £290,567; February, £174,380; March, £241 002; April, £159,352; May, £172,965; June, £204,330; July, £261,913; August, £309,868.

THE ROYAL BANK OF CANADA
HEAD OFFICE. MONTREAL.

LONDON, ENG.
PRINCES ST., E.C.

NEW YORK
68, WILLIAM ST

PARIS, FRANCE.
THE ROYAL BANK OF CANADA (FRANCE)

BARCELONA.
PLAZA DE CATALUNA 6

685 BRANCHES.

590 Branches in Canada and Newfoundland, also

95 FOREIGN BRANCHES.

ARGENTINA Buenos Aires. BRAZIL Rio de Janeiro, Santos, Sao Panlo. URUGUAY Montevideo.

VENEZUELA Caracas, Ciudad Bolivar. Maracaibo, Puerto Cabello. COLOMBIA Barranquilla. COSTA RICA San José.

WEST INDIES

CUBA—Havana (6 Branches), Antilla, Banes, Bayamo, Caibarien, Camaguey, Camajuani, Cardenas, Ciego de Avila, Cienfuegos, Cruces, Cueto, Florida, Guantanamo, Jatibonico, La Maya, Manzanillo, Matanzas, Moron, Nuevitas, Palma Soriano, Pinar del Rio, Puerto Padre, Sagua la Grande, Sancti Spiritus, Santa Clara, Santiago de Cuba, and at thirteen other points.

PORTO RICO—San Juan, Mayaguez and Ponce. HAITI—Port-au-Prince.

DOMINICAN REPUBLIC—S. Domingo, Puerto Plata, Sanchez, S. Pedro de Macoris, Santiago de los Caballeros and La Romana.

MARTINIQUE—Fort de France, Trinidad.

QUADELOUPE—Pointe-à-Pitre and Basse Terre.

BRITISH WEST INDIES— Antigua, Bahamas, Barbados, Dominica, Grenada, Jamaica, Montserrat, Nevis, St. Kitts, Trinidad and Tobago.

BRITISH GUIANA—Georgetown, New Amsterdam, &c.

BRITISH HOHOURAS—Belize.

CAPITAL PAID UP & RESERVES $35.000.000
TOTAL RESOURCES OVER - - $560,000,000

Union Corporation.

Results of operations on the producing mines of this group for the month of August are:

Company	Stamps.	Tons Crushed.	Fine Ozs.	Total Revenue.	Revenue per ton
Geduld Proprietary .	100	45,000	15,797	£89,399	39/ 9
Modder Deep Levels	70	42,300	21,858	122,580	58/ 0
Totals	170	87,300	37,655	£211,979	—

Company.	Costs.		Profit.	
	Total.	Per Ton.	Total.	Per To
Geduld Proprietary ...	£51,752	24/ 4	£34,647	15/ 5
Modder Deep Levels ...	50,196	23/ 9	72,384	34/ 3
Totols	£104,948	—	£107,031	—

The above results are arrived at by calculating the gold produced at £5 12s. 6d. per fine ounce. Realisation charges in excess of normal are debited direct to revenue account.

Princess Estate.—The clean-up operations still continue. During the month 1,133 ounces fine gold were recovered.

Transvaal G.M. Estates.

The following are the particulars of the output for the month of August, 1920, in respect of this company: Central Mines: Tons crushed, 14,150, yielding 4,407 fine ozs. Elandsdrift Mine: Tons crushed, 1,500, yielding 1,092 fine ozs. Vaalhoek Mine: Tons crushed, 1,900, yielding 696 fine ozs. Estimated value of month's output, £33,914; estimated profit for month, £12,272. The month's results are based on a value of gold of £5 12s. 6d. per fine oz., less realisation charges.

STANDARD BANK
OF
SOUTH AFRICA.
LTD.

SUBSCRIBED CAPITAL
£6,250,000

PAID-UP CAPITAL
£1,562,500

RESERVE FUND
£2,200,000

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

NATIVE TRAINING SCHOOL.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—In support of your correspondent, "Old Shift Boss," relative to either the Government or the Chamber of Mines instituting Native Training Schools, I should like to suggest: (1) That the matter be represented officially to the Minister of Mines, giving him opinions of leading practical mining men to show how beneficial such schools would be. (2) That the Chamber of Mines should take steps to enrol the names of men who have served with the forces in the Great War suffering with miners' phthisis, and give them the first preference to train the natives. (3) That the Native Affairs Department or the Native Recruiting Corporation should be approached to obtain the opinion of the native chiefs and also to select suitable places in the native territories where the training schools might be started. A great many of the men suffering with miners' phthisis could be given employment in the open air and would no doubt jump at the idea of having something to do. These unfortunate but experienced men, who know underground conditions, the advantages of a thorough knowledge of the laws and conditions relating to "safety first," could teach the raw native the whole of the preliminary work on a mine. The greatest economy can be effected by efficiency, and when all the new native recruits arrive on a mine with some knowledge of what they have to do that mine will very shortly have an efficient body of labourers. It takes a little time to make a good hammer boy, or to get a native to rig up the drills, or understand all the many little details of work allotted to them in a mine. When made familiar with the various workings at the training schools, where a number of trained native miners could be also employed to explain matters, these recruits would leave their kraals for the mines with a knowledge of what is expected of them and a knowledge of certain dangers which have to be avoided. There is no reason why these schools should not, in time, be expanded and gradually embrace various branches of agriculture so that the farmer or the housekeeper may have more efficient labourers. In South Africa the white man leaves the actual manual labour to the black man and that being the case we have got to try and train and teach the labourer to be worthy of his hire.—Yours, etc.,

EMPLOYER.

ECONOMY ON THE MINES.

To the Editor, *S.A. Mining and Engineering Journal.*

Sir,—With reference to your remarks on the question of economy in regard to the costs on the mines, I agree with you that a Salvage Corps on the Rand would repay the cost of its establishment and maintenance a thousand-fold. Many years ago I wrote to your Journal and pointed out the wastage that went on in the mines, and stated that in candles alone the wastage would be equal to the engineer's salary. The War has taught us many things, and in our mines we could safely follow the example of the belligerent armies by appointing a salvage officer, whose duty it would be to save the vast amount of material of all kinds which goes to waste on the mines. All the old and damaged cocopans, old rails, picks, shovels, etc., could be salvaged and sold to one of the ironworks as scrap, where such material could be melted and put into some other use. Without going into details, I feel confident that an enormous saving could be effected in this way so as to materially reduce the working costs. This salvage officer would not in any way conflict or interfere with the duties and functions of the business manager. On the contrary, he would help the business manager in keeping down expense; but most of his duties would be performed down below as well as on the surface. This is not a new subject, and many of the old mine captains will remember that years ago it was suggested; but, unfortunately, some of the American managers, who ran the mines in those days, looked upon it as a reflection upon themselves, and the matter dropped. Let one mine of a group try it; but they must get the right man with a business training, as well as a little knowledge of mining, and see what the result will be, say, after a three months' trial. I see many, shall I say, derelict mine managers on the Rand, men of the past who are doing nothing and would be only too pleased to accept such an appointment. There are many ex-colliery managers who have had a training in mining economy who would make excellent salvage or economic officers on the mines. Certain power and discretion must be given to such an officer, to allow him to enforce his ideas of economy. It is well worth a trial.—Yours, etc.,

OLD STAGER.

Published annually.

THE

LONDON DIRECTORY

with Provincial and Foreign Sections

enables traders to communicate direct with

MANUFACTURERS & DEALERS

in London and the Provincial Towns and Industrial Centres of the United Kingdom and the Continent of Europe The names, addresses and other details are classified under more than 2,000 trade headings, including

EXPORT MERCHANTS

with detailed particulars of the goods shipped and the Colonial and Foreign Markets supplied;

STEAMSHIP LINES

arranged under the Ports to which they sail, and indicating the approximate Sailings.

One-inch BUSINESS CARDS of Firms desiring to extend their connections, or Trade Cards of

DEALERS SEEKING AGENCIES

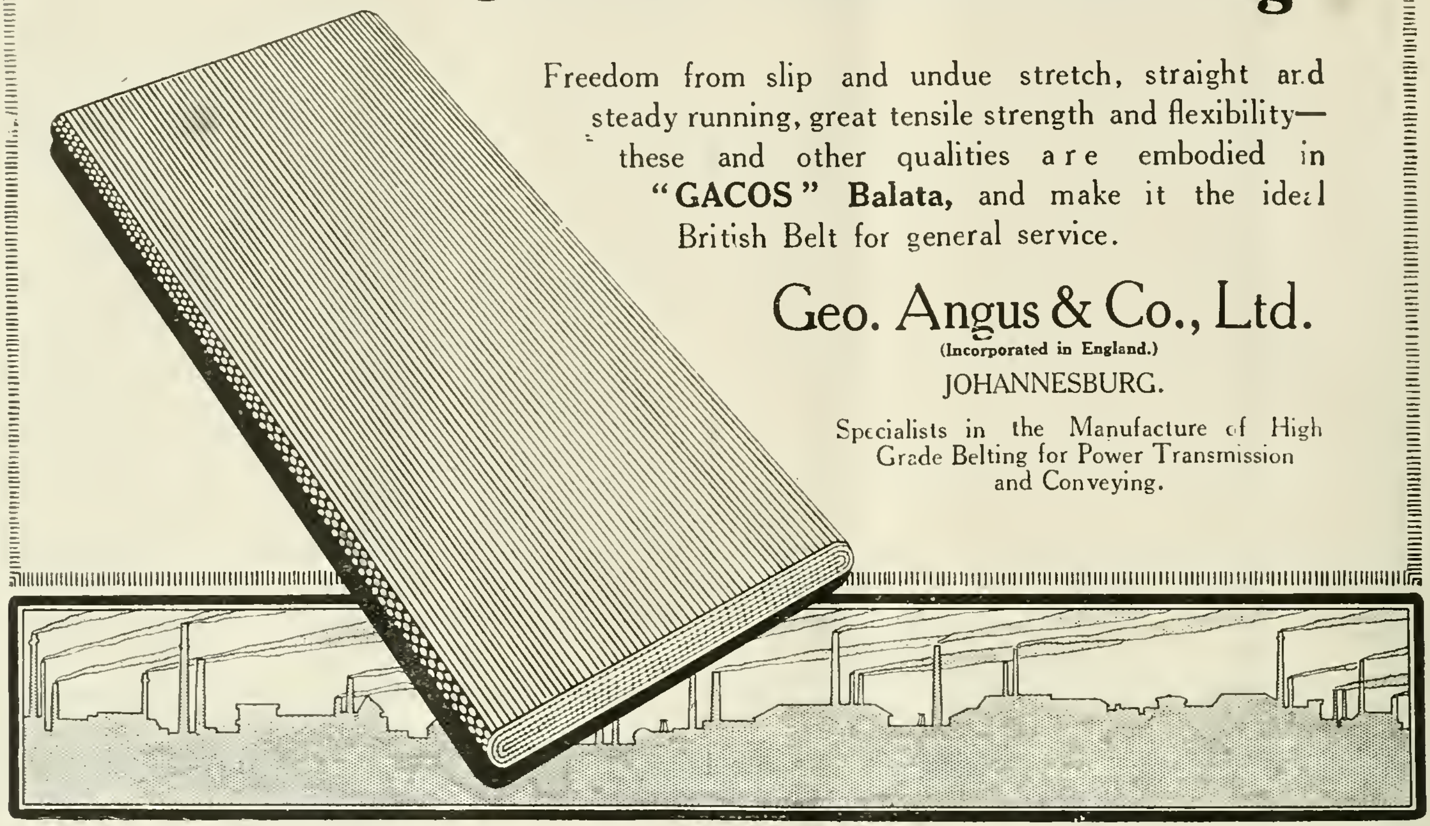
can be printed at a cost of **£1 : 10 : 0** for each trade heading under which they are inserted. Larger advertisements from £2 to £16.

A copy of the directory will be sent by parcel post for **£2**, net cash with order.

THE LONDON DIRECTORY Co., Ltd.

25, Abchurch Lane, London, E.C. 4, England.

Business Established in 1814.



"GACOS" Balata Belting.

Freedom from slip and undue stretch, straight and steady running, great tensile strength and flexibility—these and other qualities are embodied in **"GACOS" Balata,** and make it the ideal British Belt for general service.

Geo. Angus & Co., Ltd.
(Incorporated in England.)
JOHANNESBURG.

Specialists in the Manufacture of High Grade Belting for Power Transmission and Conveying.

C. C. WAKEFIELD & Co., Ltd.,

Manufacturers of

High-Class Lubricants

FOR

RAILWAY, MARINE, ELECTRICAL, MINE and COLLIERY WORK.

Makers of the Famous

"CASTROL" MOTOR OILS.

Patentees and Makers of

MECHANICAL LUBRICATORS.

P.O. Box 2123. Telephone 6418 Central
24/25, OCEANA BUILDING,
Simmonds Street,
JOHANNESBURG.

P.O. Box 1521.
HULSTON'S BUILDING,
Smith Street,
DURBAN.

Telegrams: "CASTROL."

Industrial Alcohol and Ether.

THE DENATURING PROBLEM—HELPING THE MANUFACTURERS.

The annual report of the Advisory Board of Industry and Science contains the following:

Further consideration has been given during the past year to the question of denaturants for industrial alcohol. In the early part of 1919, a further application was received from the manufacturers of "Natalite" for the total elimination of wood naphtha as a denaturant. It was contended that benzol, without the addition of wood naphtha, was a complete denaturant, but the manufacturers were willing to add a further proportion of pyridine. The Board was not prepared to recommend the permanent elimination of wood naphtha as a denaturant, but considered that, in view of the high cost of denaturants it was necessary to adopt some temporary measure to enable the manufacturers of Natalite to compete with the increased supply of petrol. Permission for the company to manufacture a quantity of 30,000 gallons of Natalite without using wood naphtha as a denaturant (to be replaced by the addition of 1 per cent. pyridine) was therefore recommended, as the Board considered this would be sufficient to render the alcohol non-potable and most difficult to distil. This recommendation was duly transmitted to the Commissioner of Customs, who was unable to agree thereto. The Board, however, considered that the present position of the industry was such as to warrant relief, and recommended that a time limit of six months should be fixed during which period the company should be allowed to manufacture Natalite without using wood naphtha as a denaturant, the latter to be replaced by a half per cent. of pyridine bases. This recommendation was also refused by the Commissioner of Customs on the grounds that the use of pyridine bases in place of wood naphtha would not give sufficient denaturation. Faced as this country is with a large native and coloured population, the Commissioner was unable to agree to the release of spirit denatured with 1 per cent. of pyridine bases only. It is understood that the difficulties of the company are, for the present, at an end owing to a consignment of a new denaturant having arrived. It is understood, further, that the use of this denaturant, Simonsen Oil, is permitted by the Government to replace wood naphtha.

Excise Duty on Ether.

An application was received during the year in regard to the excise duty on locally manufactured ether for industrial purposes. It was urged that the whole duty should be rebated, and that the duty on similar ether for anæsthetic purposes be reduced to the level of the import duty, viz., 20 per cent. *ad valorem*. This matter was investigated by a sub-committee of the Board, which reported that a duty of 2s. per gallon was levied under Clause (b) of Part II. Act No. 20 of 1918, on plain spirit used in the manufacture of ether (equal to 5s. per gallon on the manufactured article), whereas it appeared that, subject to interpretation of terms, the whole of the duty might be rebated under Clause (b). The pre-War price of imported ether was approximately 4s. 6d. per gallon, plus an import duty of 20 per cent. *ad valorem* = 5s. 5d. per gallon (duty equivalent to approximately 4d. per gallon on the plain spirit), whilst the present price is about £1 per gallon, with a duty of 20 per cent. = 4s. per gallon (duty equivalent to 1s. 7d. per gallon on plain spirit). The Board felt that, although the price then obtaining for imported ether was abnormal and possible of an appreciable reduction in the near future, the locally manufactured article, even at the price then ruling, had to pay a higher duty than the imported, viz., 2s. per gallon as against 1s. 7d. The local industry was likely to be still more heavily handicapped with a further reduction in price of imported ether. In view of these facts, the Board recommended that the whole excise duty should be rebated on plain spirit used for industrial purposes, *i.e.*, suitably methylated or denatured, or used for the manufacture of ether, acetic acid and other substances differing chemically from alcohol, such chemical substances to be approved by the Commissioner of Excise. The action of the Government in this matter is appreciated by the Board, and it is considered that the amendments appearing in Part II. of Act 32 of 1919 have satisfactorily met the position. The amendments provide for a remission of the whole duty on: Rectified spirit used in the manufacture of ether, or other substance, by a process which causes the ethyl alcohol to undergo chemical change, and provided that not more than 2 per cent. by volume of ethyl alcohol remains in the resulting ether or other produce.

Union Minière and Coal.

At the time the railway from Kambove to Bukama was being surveyed in 1911, the Bas Congo Katanga Railway had found, at Sankishia, to the south of Bukama, certain indications of coal deposits, and at the beginning of 1914 this company had registered a large number of circles for coal. As soon as the railway was joined up with Bukama, the Union Minière, in agreement with the Bas Congo Katanga Railway, commenced doing some prospecting, in particular, several drill-holes. This work showed the existence of carboniferous seams. Some tests, the first results of which are satisfactory, are at the present being made, and it is to be hoped that this fuel can be utilised on good conditions to feed locomotives and boilers, although it appears unsuitable for the manufacture of coke. If hopes are realised, this discovery is of a nature to improve considerably Union Minière working conditions in Katanga, where the problem of obtaining sufficient firewood is becoming year by year more difficult.

'Phone 4673.
Box 3162.

OSBORN'S
DRILL STEEL (solid and hollow).
TOOL "
ALLOY "
SPRING "
SHAFTING "
PLATE "

SHOES & DIES.

STEEL CASTINGS.
SKIP WHEELS.
"DALY" TAPPETS.
TRUCK WHEELS & AXLES.

"TITAN" MANGANESE STEEL.
CRUSHER SPARES & MORTAR BOX LINERS.

MUSHET HIGH SPEED STEEL.

Files, Shovels, Saws, etc.

SAMUEL OSBORN (South Africa) LTD.,
SHEFFIELD and JOHANNESBURG.

Diamond Returns for July Month.

SOUTH-WESTERN TRANSVAAL DIGGINGS.

The returns from the various alluvial diamond diggings in the South-Western Transvaal for the month of July amounted to 9,022 carats value £78,268 as compared with 8,656 carats value £88,030 in June, 6,341 carats value £61,910 in May, and 8,390 carats value £141,415 in April, when the slump in prices made itself felt. The returns for July are given officially as under:—

Name and No. of Farm.	Carats.	Value.
Assegai 181	17¼	£81
Appesdale	4	42
Biesjeslaagte 23	8¾	54
Bloemheuvel 171	59½	450
Bloemhof 130	581	4,270
Blesbokfontein 63	1.208¾	9.660
Christiania	61	599
Cawood's Hope 79	9¼	79
Doornbult 93	38¾	535
Diamantdoorns 131	13½	78
Driekoppies	4½	15
Dievedraai 245	43¼	252
Eastleigh 593	40¼	398
Eerstebegin 290	5	56
Goedgenoeg 593	7½	225
Grootpoort 125	3	70
Grootdoorns 133	20½	134
Goodhope 78	13	200
Goudplaats 318	178	2,327
Graafwater	12	116
Holloway's Rust 142	44½	549
Kareepan 137	544½	4,695
Kameelkuil 142	1,594½	14.453
Klipkuil 104	28	175
Kromellenboog 108	6½	32
Kafferpan 65	67	593
Klippan 174	10¾	110
Kuilfontein 121	1½	20
Koppiesvlei 54	7	21
London 33	502½	3.691
Leeuwfontein 143	141¾	1,212
Langkuil	4¼	35
Mooifontein 128	54	391
Maroetjesfontein 120	4½	58
Mimosa 75	15¾	70
Olivenfontein 376	24½	294
Plessisdam 121	309	2,535
Rietput 120	6¼	47
Rooikraal	3¾	69
Rietkuil 138	1.365½	11,396
Sandringham 25	12	138
Syfergat 150	171¾	1.381
Schweizer-Reneke	98	830
Van Zyl's Drift 154	8¼	84
Vuurfontein 61	2	9
Vaalbank 165	2½	9
Vlaakkraal 162	5	80
Welgevonden 52	9¼	100
Zevenfontein 165	53½	568
Zwartlaagte 68	1.595	14.979
Total	9,022	£78,268

OTHER TRANSVAAL AREAS.

Bynestpoort 520	1.727	£4,816
Kameelfontein 106	352	423
Rietfontein 501	42¾	26
Total	2,121¾	£5.265

PUBLIC DIGGINGS IN THE CAPE PROVINCE.

The output of diamonds from the public diggings in the Cape Province for the month of July was as under (the number of claimholders in Barkly West District being given as 1,493):

BARKLEY WEST DISTRICT (3,872 carats, value £37,374 8s. 6d.)

	Diggers.	Carats.	Value.
Delpoort's Hope	20	172¾	£1,346
Eland's Drift	12	104	737
Forlorn Hope	13	88¼	1,013
Gong Gong	45	258	2,159
Good Hope	60	310	1,727
Grootkop	2	5½	45
Harrisdale	44	241¾	1,733
Hebron	93	463½	5,243
Holpan	27	139¼	1,260
Kareepan	26	155¼	1,293
Klipdam	37	202	2.121
Klipdrift	63	231¼	1,390
Longlands	26	286½	1,443
Niekerk's Rush	11	101¼	1,305
Ricketts' Prospect	10	43¼	235
Rooidam	15	168¾	2,134
Scholtz's Prospect	18	85	675
Snyder's Rush	14	90	785
Van Zoelen's Laagte	1	3¼	30
Waldeck's Plant	40	371½	3,676
Ward's Hope	5	13¼	102
Winter's Rush	30	337¾	3,940

HERBERT DISTRICT (820¾ carats, value £8,431 17s. 6d.)

Brypaal	23	43¾	£435
Davisdrift	21	63	427
Mosesberg	22	622¾	6,518
Schmidt's Drift	21	91¼	1,050

KIMBERLEY DISTRICT (244¾ carats, value £2,053 10s. 6d.)

Robinson's Kopje	12	76¼	£713
Wedberg	26	168½	1,340

TAUNGS DISTRICT (1,543½ carats, value £14,256 5s.)

Home Rule	16	227¼	£1,881
Killarney	21	71¼	776
Tlapeng	215	1,245	11,599

PRIVATE ESTATES.

Pniel Estate	286½	£2,393
New Vaal River D. & E. Syndicate	1.065¼	11,943
River View Diamond Syndicate ...	76½	903

PERSONAL.

The Secretary of the South African Red Cross Society would be grateful for the gift of any lengths of old (or new) half or three-quarter inch hose for which anyone has no further use. It is required to save invalided soldiers carrying water to tend their gardens in a military hospital grounds. Please 'phone 1641 Central or write P.O. Box 3266, Johannesburg.

African Banking Corporation, Ltd.

Authorised Capital - - -	£2,000,000
Subscribed Capital - - -	£2,000,000
Paid-up Capital - - -	£1,000,000
Reserve Fund - - -	£ 360,000
Reserve Liability of Shareholders -	£1,000,000
	£2,360,000

Head Office: 63, London Wall, London, E.C.

☞ Branches throughout South Africa and Agents and Correspondents throughout the World

The United States Adopts a Militant Shipping Policy!

IMPORTANT MOVE TO COMPETE WITH BRITISH FOR WORLD TRADE—LEAF FROM GERMANY'S BOOK.

Undoubtedly the question which is at present most present in the minds of those interested in shipping is the passage through the U.S. legislature of the Jones Shipping Bill. The provisions of this Bill are so drastic that it seems impossible that British shipping will not be very materially and adversely affected.

The Bill was signed, over the protest of the Department of State, by the President on 5th June, and it is described as a great triumph of subsidy and protection as applied to U.S. shipping. It combines Government ownership and subsidy, and is believed to go far beyond the most sanguine hopes of the Protectionists. A few of the features of the Bill may be mentioned:

1. A Shipping Board is established as a Government Department for an indefinite period, and all vessels either launched or under construction, and all other property belonging to the present Board, or to the Emergency Fleet Corporation, are transferred to it.

2. The Board is instructed to sell all the vessels to American citizens at such price as may be considered consistent with good business methods (the Board to be the sole judge of the interpretation to be placed on this phrase).

3. After five years the Board is authorised to set aside a sum of $25,000,000 annually from the proceeds of its sales to be used in the construction, or in the aid of construction, of vessels in private yards of the U.S.

4. The Board is to direct its attention to the study of new shipping routes, and being satisfied that such routes are "desirable for the promotion, development, expansion and maintenance of the foreign and coastwise trade of the U.S.," is authorised to sell or charter vessels to suitable firms or individuals for the maintenance of the desired routes (apparently without regard to any question of profit or otherwise, and always with the Treasury in the background).

5. The law authorising the admission of foreign-built vessels to American registry is repealed.

6. The transfer of American documented vessels to foreign registry is forbidden, except with the special consent of the Board.

7. Provision is made for the granting of low export rates on goods carried in U.S. vessels.

8. Shipowners are exempted from income and excess profit taxes for ten years provided the sum due under these taxes is reinvested annually in new ship construction.

9. Entry into U.S. ports can be refused to foreign vessels that have entered into any form of discriminatory rebates for the carriage of goods between any ports.

10. Mails are to be carried in U.S. vessels whenever possible.

11. The American Bureau of Shipping to be considered the proper authority for the classification of U.S. vessels.

12. Any combination of insurance companies formed for the purpose of transacting marine insurance in the U.S. and in foreign countries shall not be considered as contravening the Sherman Anti-Trust Law.

Frank Smith Diamonds.

From all we hear, the shares of the Frank Smith mine are likely to receive attention in the near future (says the London *Mining World*). It will be remembered that the company was reconstructed recently, and the mine, which was in a state of suspended animation during the War, reopened. Had it not been for the financial assistance rendered by the Johannesburg Consolidated Investment Co., the concern might have had to go into liquidation; but, thanks to the help referred to, it was kept alive, and a scheme of reorganisation was carried through. The nature of the scheme was expressed in the following resolutions:—(1) That the capital of the company be reduced from £300,000, divided into 800,000 shares of 7s. 6d. each, to £199,078 2s. 6d., divided into 538,250 shares of 3s. 9d. each, and 261,750 shares of 7s. 6d. each, and that such reduction be effected by cancelling capital which has been lost or is unrepresented by available assets to the extent of 3s. 9d. in respect of each of the 538,250 shares of the company which have been issued, and by reducing the nominal amount of each of such 538,250 shares from 7s. 6d. to 3s. 9d.; (2) That on the reduction of the capital of the company to £199,078 2s. 6d. taking effect, every two of the 538,250 shares of the company of 3s. 9d. each resulting from such reduction which have been issued and are fully paid be consolidated into one share of 7s. 6d., so that the capital of the company may consist of 530,875 shares of 7s. 6d. each; (3) That on such reduction of capital taking effect the capital of the company be increased to £300,000 by the creation of 269,125 new shares of 7s. 6d. each, ranking in all respects *pari passu* with the above-mentioned 530,875 shares of 7s. 6d. each. Under this scheme the 269.125 new shares issued at 7s. 6d. provided £100,921, and after discharging the liabilities, amounting to £40,000, a sum of £60,000 remained as working capital. The guarantors were the Johannesburg Consolidated Investment Co., who have the right for a period of three years to subscribe at par for 251,750 reserve shares. The consent of the court was duly obtained, and Mr. J. L. van Eyssen, manager of the Roodepoort United Main Reef, and formerly manager of the State Mines, was appointed manager. Washing operations were commenced without delay, and as the mine is equipped with an excellent washing plant of 4,000 loads per day nominal capacity, and 2,000,000 loads of blue ground are reported to be available above the 200-ft. level, the outlook is considered exceptionally attractive. Mr. Van Eyssen is very sanguine as to the results, and it is estimated that, on a conservative basis, a profit of £16,500 per month will be earned. This assumes a selling value for the produce of £8 per carat, but a price of £12 per carat is anticipated.

* * * *

An Emergency Gravel Pump.

The chief engineer, Mr. Bernard Rance, A.I.M.M., A.I.E.E., of the Burma Ruby Mines is evidently a versatile man, as indeed the managers of mines in out-of-the-way parts have to be if their efforts are to be successful. In the "Electrical Power Plant and Workshops" section of his latest annual report he writes: "We are fairly well self-contained with our iron and brass foundries, machine and fitting shops and a pattern-making and woodworking department. Considering the small amount of supervision all hands give a very fair return for the expenditure on workshops, and the various important works successfully carried out during past years are standing to prove their competence as tradesmen. This year a gravel pump was copied from rough sketches found in a mining paper, working drawings made, patterns turned out and the parts cast in the foundry. The casing was made up of odd plates and the whole fitted together and run before the pumps ordered from England had been shipped. It may not be as efficient or last as well, but serves the purpose for which it was made."

Geological Investigation by Aeroplane.

Geological investigation by aeroplane (says the *Mining Magazine*) does not seem at first sight to be practicable, but since the reading of a paper before the Royal Geographical Society, describing the discovery of the traces of an ancient unknown city in Mesopotamia by this means, incredulity on the subject is no longer pardonable. In the course of the flight from Cairo toward Capetown, Dr. Chalmers Mitchell made observations that are distinctly useful to the geologist, and his detailed report is awaited with unusual interest. In the meantime Professor J. W. Gregory has announced that Dr. Chalmers Mitchell's messages contain useful hints as regards the theory of the Great Rift Valley, of which more anon. There can hardly be any doubt as to the value of the views from overhead of surface geology, for the outcrops of lodes or the indications of their presence may be more recognisable from this aspect than from the limited range of view of the pedestrian. This reminds us of an old story, probably untrue but *ben trovato*, of the shareholder who spoke many years ago at a Dolcoath meeting. In referring to the prosperity of the mine, he said that Dolcoath had been successful for many years, was successful then, and that after he went aloft he hoped to look earthward and witness a long continuance of active operations. An unkind critic rejoined that the shareholder might do more good to the company if he decided to adjourn downward instead of upward at the conclusion of his sojourn in life, because then he might be able, by wireless or spiritualistic message, to tell them something of the persistence of the ore in depth and of the paragenesis of the various minerals in Cornish ore. Perhaps, in view of the evidence of Dr. Chalmers Mitchell and Professor Gregory, that shareholder was as knowing as his critic.

* * * *

H.E. Proprietary and Klippoortje.

Regarding the farm Klippoortje No. 228 (freehold of 3,241 acres), Far Eastern Rand, the annual report of the H.E. Proprietary says: " Last year an agreement was concluded with the owners of the adjoining farm Maraisdrift, viz., the Rhodesia Exploration Co., Ltd., and the Union and Rhodesian Trust, Ltd., which provides for the joint exploitation of the two properties and their ultimate absorption by a new company. As vendors of the farm Klippoortje, northern portion, the H.E. Proprietary (New), Ltd., is to receive on flotation £231,000 in shares of £1 each, together with the right to subscribe a portion of the working capital. During the past year Mr. G. A. Denny (one of the leading engineers of the Witwatersrand gold fields) was commissioned to investigate the geologic and economic aspects of these two properties and to prepare a preliminary scheme for their development. A copy of Mr. Denny's report will be sent to any shareholder applying to the secretary. Mr. Denny states that the reefs in Maraisdrift (which also underlie Klippoortje) are held by all men of authority in either geological or mining branches in South Africa, to be a continuation of the formation which extends from the Elsburg Reefs to the Main Reef Leader, and that the Main Reef, the Van Ryn Reef, and the Nigel Reef are one and the same reef, a dictum which is unequivocally confirmed in a recent official statement by the Mining Department of the Government of the Union of South Africa. Mr. Denny recommends that the mining area to which the joint owners are entitled on proclamation be increased to 3,000 claims. From such an area he estimates that an ultimate profit of £2 per ton from 15,000,000 tons of clean ore, equal to a profit of £30,000,000, may reasonably be expected. This estimate is, of course, made by Mr. Denny with all due reservations and subject to deductions which are set out in his report. There is, however, little doubt in the minds of the directors that in the farm Klippoortje the company possesses a gold mining area which in the near future will come within the range of practical development on a large scale. The difficulty which the low grade mines on the Rand experience in working at a profit under existing conditions, will eventually necessitate the opening up of the richer areas on the Far Eastern Rand, and the directors regard the farm Klippoortje as an asset of great prospective value."

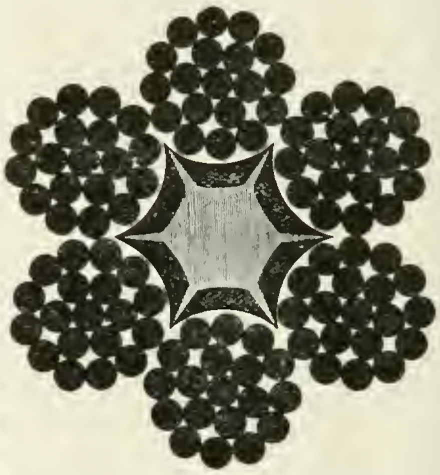
CRAVEN & SPEEDING
BROS.
SUNDERLAND
ENGLAND

"WESTGARTH PATENT CORE"
WIRE ROPE.

It provides greater safety than can be secured by the regulations attached to the New Mines Act, because it is impossible for any acid in the hemp core to corrode the wires in the strands. A rope with an ordinary core frequently appears to be in good condition on the exterior, whilst its interior is in a dangerous condition.

As the strands cannot crush each other there is no internal friction, and in consequence, broken wires are reduced to the minimum.

SAFEST ROPE FOR WINDING AND HAULAGE.



At a normal load there is less elongation and consequently less twist in the shaft than is usual with ropes constructed with ordinary cores.

Prevents disintegration of Hemp Core.

Sole Agents for Transvaal and Natal:—

CLYDE TRADING
Co., Ltd.,
Howard Buildings,
C o Main & Loveday Streets,
JOHANNESBURG.
Box 457. 'Phone 5964.

SOLE MANUFACTURERS
"WESTGARTH
PATENT CORE"
WIRE ROPE

The Week in the Sharemarket.

BETTER WITH MORE BUSINESS—SILVERS THE FEATURE—DIAMONDS BRISK.

SILVERS have been the feature of the week. Pretorias have been dealt in to the exclusion of other stocks, but some gold shares have been mentioned. The news from London is not too reassuring, and remains the restraining factor in the market. But the worst never happens, and in South Africa the optimist is always right. Therefore, there is a strong undercurrent of optimism, and there is much to be said in its justification. The week is reflected in the undermentioned prices:

	Fri., 3rd.	Sat., 4th.	Mon., 6th.	Tues., 7th.	Wed., 8th.	Thurs., 9th.
Anglo-Amer. Corp.	32 6*	32 6	33 0	33 9	33 0*	33 0
Apex Mines	—	6 6†	—	—	—	—
Bantjes Cons.	3 0*	3 0*	3 0*	3 6†	3 0	—
Brakpan Mines	45 0*	48 9†	48 9†	47 6*	48 9*	48 0*
Breyten Colls.	—	8 0*	8 0*	8 0*	8 0*	8 0*
Brick and Potteries	—	5 0*	—		—	4 9*
British S.A.	15 0*	15 0*	15 0*	—	—	15 0*
Bushveld Tins	1 0*	—	1 0*	1 0*	1 0*	0 11*
Cassel Coals	—	31 6*	—	31 6*	—	31 0*
Cinderella Cons.	3 0*	—	4 6†	—	—	2 6*
City and Subs.	6 10*	7 0	7 0*	6 9*	7 0	7 3†
City Deeps	54 0*	56 0	56 3*	56 0*	—	—
Clydesdale Colls	25 0*	27 0	27 0*	28 0	—	—
Con. Langlaagtes	16 0*	16 0	—	16 0*	—	16 0*
Con. Main Reefs	14 6a	15 0	14 9*	15 3	14 9	14 6*
Con. Mines Selection	22 0*	22 0	22 0*	—	22 0*	—
Coronation Colls.	70 0*	70 0*	70 0*	70 0*	70 0*	70 0*
Coronation Freeholds	1 8†	1 8†	1 8†	1 4*	1 4*	1 4*
Coronation Syndicates	—	9 6*	9 0*	10 6	11 0*	11 3
Crown Diamonds	6 10*	6 10*	6 10	6 9	6 6	6 3
Crown Mines	50 0*	50 0*	51 0*	—	50 0*	51 3*
Con. Diamonds	32 6†		31 9*	31 0*	29 9*	31 6
Daggafontein Mines	11 3*	11 3*	11 3	11 3*	11 0*	11 0*
Do. Options	2 0*	2 0*	2 0*	—	1 6*	—
De Beers Pref.	£12†	£11*	£11*	—	—	—
East Rand Coals	2 5*	2 5*	2 5*	2 5*	2 5*	2 5
East Rand Deeps	—	0 7*	0 6*	0 9	0 8*	0 8*
East Rand Props.	8 9	8 6	7 9*	8 3	8 3*	8 0*
East Rand Debts.	£70*	£70*	£70	£70*	£70*	£70*
Ferreira Deeps	—	—	—	—	7 6*	7 6*
Frank Smith Dmds.	17 7½	17 3	17 3	17 9	17 4½	17 6
Geduld Props.	37 3*	37 6	37 6*	37 6*	37 6*	37 6
Glencairns	1 3*	1 3*	—	1 3*	1 3*	1 3*
Glencoe Collieries	7 0*	7 0*	7 0*	8 0	8 0†	—
Glynn's Lydenburgs.	10 0*	10 6*	10 6*	10 6*	10 6*	10 6
Govt. Areas	84 0*	84 0	84 6	84 6*	84 0*	84 6*
General Minings	10 0†	10 0†	10 0†	10 6†	10 6†	10 0†
Jhb. Bd. of Ex.	—	40 0*	—	40 0*	40 0*	40 0*
Jupiters	1 6*	1 6*	1 6*	2 0	1 9*	1 9*
Klerksdorp Props.	—	2 0*	2 0*	—	2 0*	—
Knight Centrals.	4 6*	4 6*	4 7½	4 7	4 7	4 7
Knights Deeps	—	—	—	4 6*	5 6*	—
Kaalfonteins	0 3	0 3	0 3*	0 3*	0 6†	0 3*
Lace Props.	9 0*	9 0*	9 0*	9 0*	9 0	9 0
Leeuwpoort Tins	18 3*	18 9	18 3*	18 3	18 0	18 3
Lydenburg Farms	6 6*	—	6 6*	6 7	6 6*	6 6*
Meyer & Charltons	82 6*	—	85 0*	85 0*	—	—
Middelvlei Estates	—	1 4*	1 4*	1 4*	1 4*	1 4*
Modder B.'s	133 0*	135 0	135 0*	138 0	137 0*	142 6
Modder Deeps	42 6	42 6	42 6*	42 0	42 9	43 0
Modder Easts	21 9*	21 9	22 0	21 9	21 0	21 0
Do Options (4 yrs.)	6 1*	6 0	6 0*	6 0*	5 3	5 6
Modder Wests	17 6*	17 9	18 0a	17 6	17 6*	17 6*
New State Areas	29 0	28 6*	29 0	28 0*	28 6	28 0*
Natal Navig. Colls.	26 0*	27 0*	—	27 6	—	—
National Banks	260 0*	265 0*	270 0†	—	—	—
New Eland Dmds.	55 0†	52 6†	—	—	47 6*	—
New Era Cons.	8 6	8 9†	—	—	8 3†	—
New Geduld Deeps	1 7*	1 7*	1 7*	1 7*	1 7*	1 7*
New Heriots	6 9*	7 0*	7 0*	7 0*	7 0*	7 0*
New Kleinfonteins	7 6	7 6	7 3*	7 3*	—	—
New Modders	69 3	69 3*	69 9	70 3	71 0	71 3
Nourse Mines	11 6†	—	12 0†	10 0*	11 0†	11 0†
Pretoria Cements.	66 0*	67 0*	67 0*	67 6	66 6	66 6*
Rand Mines	54 0*	54 0*	54 0*	54 0*	54 0*	54 0*
Rand Nucleus	1 3*		—	1 3*	1 3*	—
Rand Select. Corp.	—	65 0*	70 0*	—	—	—
Randfontein Deeps	6 6†	5 9*	5 9*	5 9*	6 3†	5 9*
Randfontein Estates	17 0*	17 0*	17 0*	17 0*	17 0*	17 0*
Roberts Victors	14 6	14 0*	14 0*	14 0*	14 0*	14 3*
Rooibergs	7 0†	6 0*	6 0*	6 0*	6 0*	6 0*
Roodepoort Uniteds	0 6*		0 6*	0 6*	—	0 6*
Ryan Nigels	3 6*	3 6*	3 6*	—	—	3 6*
Rouxvilles	23 0*	22 6*	24 0	25 0	25 3†	24 6
S. A. Townships	12 9*	13 6*	13 0*	—	12 6*	12 9
Shebas	1 9†	1 9†	1 9†	1 9†	1 6†	1 9†
S.A. Breweries	29 0†	29 0†	29 0†	29 0†	29 0†	29 0†
S.A. Lands	4 9*	4 10*	4 10	4 10	4 9*	4 9*
Springs Mines	38 6	38 6	38 3*	38 3*	38 0	39 3
Sub Nigels	16 9*	16 9*	17 0	17 1½	17 0	17 3
Swaziland Tins	15 0†	15 0†	15 0†		—	—
South Van Ryns	7 9	7 9*	8 0	7 10	8 0	7 10*
S.A. Alkali	32 0	32 0	30 9	31 0	31 6*	32 0
Do. Options	15 0*	14 3	13 0*	13 9*	14 6*	15 3
Transvaal Silvers	92 0	87 6	95 0	92 3	90 0	96 0a
Do. Options	68 0	65 0	70 6	66 6*	65 0	72 6
Trans. G.M. Estates	—	12 0*	12 0*	—	13 0*	—
Victory Diamonds	1 1	1 1	1 1	1 1	1 0	1 1
Van Ryn Deeps	73 6*	73 9	74 0	74 6*	76 0*	77 0
Village Deeps	9 6*	9 6*	10 0	9 6*	10 0*	10 0*
Village Main Reefs	—	—	—	6 6†	6 6†	6 6†
Western Rand Est.	4 3*	4 6*	4 3*	4 3*	4 3*	4 3*
Witbank Collieries	50 0	—	49 0*	49 0*	—	—
Witwatersrands	12 0*	—	—	12 0*	12 6*	—
Wit. Deeps	8 6*	9 0	9 3	9 6†	9 0†	9 0†
West Springs	15 0*	15 0	15 3	15 0*	15 0*	16 6
Do. Options	1 9*	1 9*	2 0	1 9*	1 9*	2 0*
Wolhuters	4 0	4 2	4 0*	4 1*	4 1½	4 1*
Zaaiplaats Tins	6 9	6 9	6 6*	6 6*	6 6*	6 6*
Hume Pipes	22 0*	22 3*	21 6*	—	21 6*	21 0*

*Buyers. †Sellers. aOdd lots. bEx London.

An Unimproved Land Tax.

Mr. C. Hockley's statement at Bechuanaland Exploration meeting that responsible Government advocates headed by Mr. Moffat (the company's representative in Rhodesia), who swept the polls at the recent Legislative Assembly elections for Southern Rhodesia, intend as one of their first reforms to impose an unimproved land tax, has caused considerable comment. Mr. Moffat said that "those land companies which for 30 years have held up 8,000,000 of Rhodesia's best acres with the object of battening as profiteers on unearned increment created by the work of companies like ourselves, and the labour of the community, should pay for their economic lassitude or get out." The *African World* of August 7 thinks Mr Hockley quite possibly correctly interprets the policy of the Southern Rhodesian Parliament and that a punitive tax will be imposed on holders of unimproved land with the intention of taxing them out of the country, as in Australia. Such a tax would not apply to land held by the Chartered Company in Southern Rhodesia as security, but there are companies that have done little or nothing to open up their property, and they must expect that the tax, if imposed, will be progressive, automatically increasing year by year.

* * * *

Silver-Lead in South Australia.

According to a telegram received by a Southern exchange from Broken Hill, three prospectors who some little time since left that centre for Barrata, a place in South Australia about 280 miles west of Broken Hill, where silver-lead ore had been found in the early 'eighties, have brought back to the Barrier some very rich specimens of ore. Assays are stated to average 82 per cent. lead and 35 oz. silver, while some of the slugs were stated to weigh over 7 cwt. each. Blocks of land have been pegged out, and as a result there has been a small rush to the locality. The true worth of the strike will soon be known, because of the large number of skilled mining men resident in Broken Hill. It has to be remembered that, prior to the discovery of silver-lead ore at Broken Hill, the country surrounding it had been prospected in consequence of the striking of silver in the neighbourhood of the now defunct township of Silverton. Mining has since been carried on at some of the claims then worked, but in almost every instance results have been unsatisfactory. Still, while that is so, it does not say that there is no room for fresh discoveries to be made in the wide area of country extending on either side of the central mines at Broken Hill.

Whither is Labour Bound?

[The chief yearning of the British trade union "leader" is for conferences. Conferences have long ceased to have any representative value. Everybody knows that they have become mere mass meetings of lay figures for platform purposes.—The Rt. Hon. G. N. Barnes, M.P., in the *Industrial League and Council Journal.*]

Lately we have discussed the tendencies of trade unionism in some detail, for such is the power which Labour has acquired through organisation that the future of industry, and indeed of economic progress generally, depends mainly upon the direction in which that power develops. It has now attained a strength that is giving pause to the blindest reactionary. "What are we coming to?" is the phrase on everybody's lips. And nobody can answer the question—least of all the wielders of the power themselves. For like all mass movements, the trade union movement is subject to influences wholly outside the logical pursuit of the aim which gave it birth. It was born to better the worker's lot; by the irony of circumstance it may conceivably bring the worker to disaster, and die with the achievement.

* * * *

Explosives Trades, Ltd.

The first annual general meeting of Explosives Trades, Ltd., was held on July 6th at Winchester House, London, E.C., Sir Harry McGowan, K.B.E. (Chairman and Managing Director), presiding.

The Chairman sad that about three years ago it forcibly struck the management of the principal companies now forming part of Explosives Trades, Ltd., that it was necessary to secure a financial identity of interests if the problems which would arise at the termination of the War were to be handled in a scientific manner. Various foreign manufacturers of explosives and kindred commodities, notably in Germany, had formed themselves into powerful combinations, and it was felt that British interests must be similarly consolidated if they were to maintain and improve their position in the future. After protracted negotiations the task of merging was duly accomplished, and the directors were now able to give a record of two years' results of the trading operations. The dividends received from the constituent companies out of their trading results for 1918 and 1919, after deduction of income tax, gave a net balance of £1,655,241. A dividend of 9 per cent. was paid on the ordinary shares in July last out of the dividends received for the year 1918, and after meeting the dividend charge on the preference shares for 1919, the directors were able in respect of the trading of 1919 to propose a dividend of 10 per cent. on the ordinary shares and 5 per cent. on the deferred shares. After dealing with the various new enterprises in which the company had embarked, the Chairman said that their activities might be divided into two branches—namely, the chemical division and the hardware or metal division. In the first was embraced the manufacture of industrial explosives for gold mining, coal mining, etc., sporting powders, acids, chemicals, candles, gas mantles, electric bulbs, collodions, varnishes, etc., and on the metal side they had sporting and other ammunition and the production of all kinds of metal goods and hardware, motor accessories, metal powders, welding, etc. The board were optimistic as to the prospects of the company. The capital outlay on reorganising the factories and in connection with the newly acquired businesses amounting—apart from the arrangement with the General Motors Corporation of America, in which they had become partners on a substantial scale—to over £2,000,000 had been financed for the time being out of the company's own resources, and its permanent treatment was now receiving consideration on the part of the board.

The Little Label

With the Big Meaning

ON every genuine Fairbanks Valve you will find this little O K label. It is being attached to Fairbanks products with a view to protecting the good name of makers and agents alike, and still more particularly, with a view to protecting *you.* The O K label is a guarantee of quality, value, and complete satisfaction; it means that the valve to which it is attached is a genuine Fairbanks valve—it means that it is a valve that will give you maximum efficient service at minimum ultimate cost. We are sole South African agents for the Fairbanks Valve and at your Service—always.

BARTLE & Co., Ltd. : 'Phone 3553

Loveday House —Box 2466 Wires "Faggot"— Johannesburg

FAIRBANKS VALVES

TRADE AND INDUSTRIES SECTION.

Week in the Mining Material & Engineering Trades

WEEK'S BUSINESS AFFECTED BY STRIKES AND IMPENDING STRIKES—IRON AND STEEL—TIMBER AND BUILDING MATERIAL—DYNAMITE—ELECTRICAL GOODS—HOME COAL MINING CRISIS—STRAY NOTES.

[*By a Special Correspondent.*]

Two important meetings that of the Commercial Exchange and of the National Industrial Corporation have been held during the past week, and make very interesting reading. Mr. Adam Y. Niven, who presided at the former, dwelt, among other things, on the great importance to the Exchange of the business done with the mines, stating that the value of stores consumed by them in the Union during 1919 was somewhere about £16,000,000 sterling, the great bulk of which was consumed in the Transvaal. The railways, he said, were still suffering from the shortage of rolling stock and engine power, which it was hoped would soon be removed. In conclusion, he quoted Mr. Julius Jeppe's optimistic views in regard to South Africa's industrial expansion, which may, in brief, be said to be that our industries, coal, iron, base metals, sugar, cotton, etc., are steadily growing. These, together with various manufacturing enterprises, in which something like £55,000,000 had been invested, it was hoped would go a long way towards filling the void left by the inevitable closing down of the gold mines. Already some 50,000 hands were employed in industries, while nearly £6,000,000 sterling were annually paid in wages. Mr. Niven said undoubtedly our industries were growing and would continue to do so, replacing in course of time the gold mining industry. At the meeting of the National Industrial Corporation the Chairman, the Hon. Mr. Hugh Crawford, referred to the institution's large interest in the South African Iron and Steel Corporation, Limited, with a capital of £1,500,000 to extend the operations of the Pretoria Iron Mines, Limited, and further said there was no doubt that the prejudice existing against local manufactures was gradually dying away. The Corporation's activities during the year in respect of other industrial undertakings show that they are undoubtedly doing a lot towards the expansion of Colonial enterprises.

The week has been an exceptionally quiet one in mining circles, which is not surprising in view of the probable coal strike in Britain, the electrical lock-out there, and the strikes at Lourenco Marques and at the Congo. The latest information from Delagoa Bay forecasts an early settlement.

IRON AND STEEL.

Things have been slack on the Commercial Exchange during the past week, and the mines have not been buying so freely as heretofore. Imported mild steel is now 42s. 6d. to 75s. for small rounds. This is a considerable rise and emphasises the dearness of imported stuff. Ordinary small rounds go as high as 100 per cent. above the price ruling six months ago. Rivets and bolts are firming up in price; imported from 70s. per 100 lbs. to 1s. 9d. lb. Stocks are not too plentiful. Steel plates are still much about the same price and very scarce: ¼ inch ordinary drill steel, 7½d; hollow, 1s. 1d. to 1s. 3d. small; brass rods are the same as last week, 2s. to 3s. lb.; shafting, 8d. lb.; copper tubing, from 3s. to 5s. 6d. lb., some sizes of which are very scarce; picks remain the same. Imported mild steel is higher at Home, £37 10s. per ton bringing the landed cost up to £45 to £50 a ton. Bolts and nuts had a big increase, bringing the price up to £5 per 100 lbs.

Orders from the Portuguese territory have slackened off on account of the strike at Lourenco Marques and the Belgian Congo. Naturally this will also affect local affairs for the time being. Further, the fact must not be forgotten that our mines are too busy with clerical work towards the end and at the beginning of the month to devote much time to purchasing. Undoubtedly the first week of the present month has been a very quiet one in mining and commercial circles. A Durban merchant, dealing largely in brass and copper, who has just returned from a trip oversea, informs us that the factories there are very full up and they did not care to cater for oversea orders, and, indeed, were refusing them. The workmanship is very bad, the manufacturers not putting sufficient material into the commodities, production being arrived at at the cost of price and finish of material. Old firms are finding their account now in buying back old stocks from the Minister of Munitions at the price paid for them by Government at which price they can dispose of them to advantage. One deal was mentioned of a certain stock of 17,000 tons of copper tubes, which was taken over from the Minister of Munitions and sold to buyers in England.

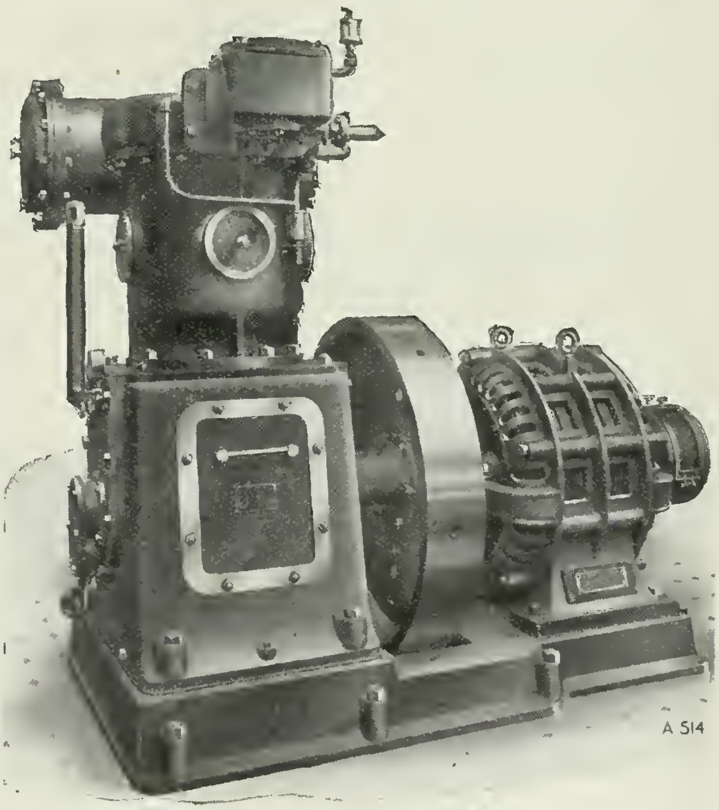
METALS AND RUBBER.

The latest report states that copper has firmed. The business was mainly in prompt standard for export; the market closed at best prices. Fears of the strike checked the demand for Home consumption. Tin commenced firm, but subsequently developed considerable weakness. The visible supply increased by the end of August to 1,700 tons. Lead was firm and large business was done, and there was good support. Rubber was apathetic and prices dropped on the surplus ruling at present.

GERMAN EXPORTS.

It is reported that Germany, in order to regain her foreign trade, is dumping her surplus of inferior goods in England and America marked "made in England" and "made in America" respectively.

The latest market reports state that in regard to vegetable oils Home consumers were indisposed to purchase in excess of the requirements, while exchange hampers export business. Tallow was rather dearer. Hides were easier, but there has been a better continental



"SENTINEL" AIR COMPRESSORS

Large Stocks carried in South Africa, ready for immediate delivery,
Steam Driven or Belt Drives.

SOLE AGENTS:
THE GRIFFIN ENGINEERING CO., LTD.
94 MAIN STREET, JOHANNESBURG.

inquiry for foreign hides. The better grades of leather were normal. The feature of the week has been a demand for low grade sole leather, many boot manufacturers asking for it.

TIMBER AND BUILDING MATERIALS.

Deals, 3 x 9, 2s., 2s 1d.; scantlings, about the same. Timber is still coming in freely from the coast, with the exception of deals, which are sluggish and are likely to be scarce towards the end of the present month. Galvanised iron is 1s. 5d., and fairly large stocks are on hand. Business has not been too brisk on the Commercial Exchange this week, and the month so far has been disappointing. Second hand timber and iron are almost as dear as new, as only a matter of less than 6d. represents the difference in timber and of 2d. in iron. There are plenty of orders for new timber and iron, but for second-hand the demand is quieter, although the inquiries during the past week have exceeded the previous period. Nothing large in the way of contracting work has been reported for weeks.

DYNAMITE.

Prices have gone up a few shillings a case, according to grade, the principal reason being the increased cost of nitrate of soda owing to higher freights and to the increased prices of boxes and paper. Accumulated stocks have gradually been worked off, hence the increased price.

ELECTRICAL GOODS.

Business generally appears to be much the same as last week. Materials, as already advised, are now arriving freely, and there is at present no shortage of goods. Notwithstanding the present glut of stuff, prices remain much the same, but with the continued influx they are bound to go lower. One important dealer said that everything was now more or less normal, and that, although prices had a tendency to go lower at Home, they were firming, and replacements would presently be dearer. On the Continent prices were all right, but goods booked now from Britain and America were steadily rising. This is explained by the latter countries having the control of the raw materials, and the recent arrivals at comparatively low prices represent stocks already stored in Continental ports. Raw materials are steadily rising in price, and labour demands are such that in a very short time electrical materials, together with others, are necessarily bound to increase in price. In this connection, it may be mentioned that the electrical trades' lock out oversea, which commenced on the 4th inst., will directly affect 2,000 electricians, but over 750,000 engineers may be immediately concerned. Negotiations for a settlement are proceeding favourably.

THE COAL MINING CRISIS AT HOME.

Sir Robert Horne, the President of the Board of Trade, has stated that the wages of the miners already amounted to 73 per cent. of the price of coal, while the owners' profits amounted to only 7 per cent.; in other words, while the miners' wages in 1913 represented just under 7s on the production per ton of coal, now they mean 24s. per ton.

STRAY NOTES.

The writer had a very interesting chat with one of our leading mining merchants who has just returned from England and the Continent. He said it was almost impossible to buy materials in England, especially electrical wares and hardware, the manufacturers being filled up with orders. Deliveries are likely to be very bad. Prices are still going up. Ideas there are, as here, very conflicting as to the coal strike, everybody being terribly afraid of what Labour is going to do. As far as Britain is concerned, things are not quite so bad as pessimists say, and during the past few months considerable improvements have taken place; but, as stated, prices are very high, and stocks are short in most lines. But the outstanding feature is the price of foodstuffs and essential living costs. Coal, for example, is 75s. to 76s. a ton in London! Sugar, control, 1s. 2d., 1s. 3d.; out of control, 1s. 5d. Belgian workmen, he said, are giving two hours of their time towards the renovation of their country, and, in fact, a compact has been made between employers and employes that until the country resumes normal men will not strike, but arbitrate. The result is that Belgium, especially Louvain, is being rebuilt at an extraordinary rate. The contract between Belgium and France, he said, is astounding; whereas in the former country things are being rapidly renovated, in France, on the other hand, the devastated parts are practically the same as they were during the War. Exchange is [illegible] francs in favour of Belgium as against France, which in itself speaks volumes. He further said that it was still quite problematical whether Germany would recapture her lost trade. Manufacturers in Britain assert that they are secure, but the merchant just returned gave one illustration which, without being elaborated, would seem to show that our alleged supremacy may be challenged in the near future. The diamond trade, according to the "Financial News," is still improving; prices continue firm and good business has been transacted in both brilliants and roughs. Mr. Bernard Oppenheimer states that arrangements have been made by which his men will join the Dutch Diamond Workers' Union. Some 600 disabled men are at present employed by Mr. Oppenheimer at the works at Brighton and elsewhere.

USE
"PORPOISE"
BRAND
ANTIFRICTION GREASE

Used for years by the majority of Mines all over South Africa.

Manufactured by
South African Lubricants & Chemical Works, Ltd.,
DURBAN & JOHANNESBURG.
Phone 1618, Johannesburg Branch Office.

NO MORE DUST.
Use BRITTANIA I WITH SOLID STEELS
AND BORE 12-14 HOLES PER SHIFT.

THE CLIMAX ROCK DRILL & ENG. WORKS, LTD.,
Phone 2190. Southern Life Buildings, Johannesburg.
Agents: S. SYKES & CO., LTD.

Rhodesia Chamber of Mines.

The report of the Executive Committee of the Rhodesia Chamber of Mines states, *inter alia*: The Secretary of Mines and Works has been appointed as the corresponding member for Southern Rhodesia of the Imperial Mineral Resources Bureau, the object of which institution is to keep in direct touch with the mineral resources of the Empire. Any information which members of the Chamber can furnish in respect of recent discoveries and development of minerals in this territory will be of service to the Bureau. The fourth meeting of the Railway Conference was held on the 5th and 6th August in Bulawayo, and reports of the General Manager of Railways were submitted for the years ending 30th September, 1918 and 1919, based on the lines of the annual report issued by the General Manager of the South African Railways and Harbours. The information given in the new form of reports is very much more comprehensive than anything that has been published hitherto. Mr. T. H. Cooke has been appointed as alternate on the Executive Committee for either Mr. J. G. Macdonald, O.B.E., or Mr. Cyril E. Parsons. Mr. F. E. Coe has resigned as representative member of the Fred Mine. Mr. S. C. Dyer has resigned as representative member of the Rhodesia Exploration Co., Ltd., and of Mr. Richard R. Hollins.

STURROCK & CO.
GENERAL, MINING AND RAILWAY
ENGINEERS AND CONTRACTORS
beg to announce that
in future this business
will be carried on
under the title:—
STURROCK
(SOUTH AFRICA) LTD.
to whom all communications should be sent.
OFFICES:—
Barsdorf's Buildings,
MARSHALL STREET,
JOHANNESBURG.
P.O. Box 2863. Telegrams: "Delta." 'Phones 2596.

ANNOUNCING THE OPENING OF
BARIMAR
IN
SOUTH AFRICA
Following the policy of putting Barimar Branch Factories around the world, the Directors have pleasure in announcing the opening of the third Barimar Factory out of England—
BARIMAR (SOUTH AFRICA) LTD.,
Head Office— BARSDORF'S BUILDINGS, JOHANNESBURG.
Barimar (South Africa), Ltd., is completely equipped with the latest appliances for welding all metals, and with the most efficient machinery for completing repairs
Highly skilled welders, trained in Barimar London Factories, control the technical side of Scientific Welding in the South African Factory, and these men will be able to produce the same grade of work that has made Barimar Scientific Welding famous throughout the Motor and Engineering Trades.
To SEND REPAIRS TO BARIMAR. We must see the parts before we can estimate or advise upon repair. Send them to us. First remove all fittings, then attach a label bearing your name and address. Please pay carriage. Post a letter to us advising despatch and give full instructions.
BARIMAR (S.A.) LTD.,
Ferreira Industrial Sites,
SAUER STREET SOUTH, JOHANNESBURG.
Telegrams "Barimar." 'Phone 2596. Box 2863.

THE BRITISH FLOTTMANN DRILL Co., Ltd.
(Successors to THE FLOTTMANN ENG. CO., LTD.),
ALLENSBANK WORKS, CARDIFF.
Flottmann Hammer Drills, Spares and Accessories.
S.A. Representative:
E. FRASER JONES,
P.O. Box 7067,
JOHANNESBURG.
Offices:
c/o STURROCK (S.A.) LTD.,
BARSDORF'S BLDGS.,
Telegrams: "BRITFLOT." Phones 2596-7.

JULY COMPANY REGISTRATIONS.

The Petrol Pouring and Saving Device Co., Ltd., 163 Skinner Street, Pretoria: capital, £5,000.

Standard Dairies, Ltd., Kruger Street, Pietersburg; capital, £5,000.

W. H. Bowater (South Africa), Ltd., 39-40 Standard Bank Chambers, Commissioner Street, Johannesburg; capital, £100,000.

Eastern Trading Company, Ltd., 44 Joubert Street, Johannesburg: capital, £7,500.

Horsfall Milling Company, Ltd., King Edward Street, Potchefstroom: capital, £15,000.

Daitzs Buildings, Ltd., 142 Market Street, Johannesburg; capital, £5,000.

Suskin and Lewison, Ltd., 47a Pim Street, Newtown, Johannesburg; capital, £3,000.

Union Chemical Works, Ltd., Beaumont Street, Booysens, Johannesburg; capital £30,000.

The South African Motor Traders' Association, Ltd., Goldfields Buildings, cor. Eloff and Fox Streets, Johannesburg; capital, £2 10s.

African Coaling and Exporting Company, Ltd., 5 Corporation Buildings, Rissik Street and Commissioner Street, Johannesburg; capital, £20,000.

Alkmaar Estates, Ltd., 70 Marshall Street, Johannesburg; capital £5,000.

S.A. Anglo-French Agency Company, Ltd., 8 Nel's Rust Buildings, Joubert Street, Johannesburg: capital, £2,500.

The Bethal Mission, 12 Smal Street, Johannesburg; capital, £100.

Colonial Industries, Ltd., 116 Exploration Buildings, Commissioner Street, Johannesburg: capital, £25,000.

South African Ranches, Ltd., 5-8 Royal Chambers, Simmonds Street, Johannesburg; capital, £100,000.

Cotzias Brothers, Ltd., 11a Diagonal Street, Newtown, Johannesburg; capital, £8,000.

Slaaihoek Mines, Ltd., 168 Church Street, Pretoria: capital, £50,000.

African Commercial Agencies, Ltd., Glencairn Buildings, Joubert Street, Johannesburg; capital, £2,000.

Land Values, Ltd., 17 High Court Buildings, cor. Joubert and Fox Streets, Johannesburg; capital £500.

Selma, Ltd., New Chambers, opposite "D" Court, New Street, Johannesburg: capital, £2,500.

S.A. Shopfitters, Ltd., 10-12 Jeppe Arcade, Commissioner Street, Johannesburg: capital, £3,000.

The Johannesburg Colportage Association, Northampton Buildings, 219 Bree Street, Johannesburg: capital, £2 10s.

The South African Colonization Society, 76 De Villiers Street, Johannesburg: capital, £50.

Caledonian Commercial Corporation, Ltd., 5 Bell's Buildings, cor. Main and Harrison Streets, Johannesburg; capital, £1,000.

Trichardts Produce Company, Ltd., Medalies Buildings, Trichardts, District Bethal; capital, £2,000.

The Goabeb Tins, Ltd., 119 and 120 Stock Exchange Buildings, Johannesburg; capital, £6,000.

Oost Transvaal Executeurs Kamer en Voogdij Maatschappij, Beperkt, 53 Joubert Street, Ermelo, Transvaal; capital, £50,000.

Sturrock (South Africa), Ltd., Barsdorf's Buildings, Marshall Street, Johannesburg; capital, £32,000.

The Caledonia Trading Stores, Ltd., 40 Steytler's Buildings, Loveday Street, Johannesburg; capital, £4,000.

Estate Mines Produce Supply Company, Ltd., 47 Pim Street Newtown, Johannesburg; capital, £1,500.

J. Hirschman, Ltd., First Avenue, Wynberg Township, Johannesburg; capital £1,000.

The Madagascar Timber and Trading Company, Ltd., 129 Commissioner Street, Johannesburg: capital, £70,000.

The National Automobile Company of South Africa, Ltd., care Anthony M. Humber, Marlborough House, Eloff Street, Johannesburg; capital, £250,000.

Myforres Diamonds, Ltd., care T. E. Duckles, 119/120 Stock Exchange Buildings, Johannesburg; capital, £1,250

The One Thousand Claims Diamond Syndicate, Ltd., care F. E. Davis, 154/158, Exploration Buildings, Johannesburg; capital £30,000.

The Mozambique Portland Cement Company, Ltd., care Frederick Jacobus Mynhardt van Zijl, 182-187 Exploration Buildings, Commissioner Street, Johannesburg; capital, £350,000.

Edendale Developing Syndicate, Ltd., care Eric Garton Collins, 94 and 134 Stock Exchange Buildings, Marshall Square, Johannesburg; capital, £15,000

The following companies have been placed in liquidation:—

African Medicines, Ltd., Prema Tailoring Company, Ltd., Fourie and Kessel, Ltd., Eastern Products, Ltd., Central Commercial Buildings Company, Ltd., Palmietfontein Syndicate, Ltd., D. Kan, Ltd., Atlantic Agencies, Ltd., Godwin, Ltd., Bongaspoort Gold Mining Syndicate, Ltd., African Firewood Company, Ltd., Gurneys, Ltd., Cedarmont Labour Association, Ltd., Kennedy & Williams, Ltd., New Boksburg Gold Mines, Ltd.

VRYHEID (NATAL) RAILWAY COAL AND IRON COMPANY, LTD.

The twelfth annual general meeting of this Company was held on July 21 at Winchester House, Old Broad Street, London, E.C., Major G. H. Peake (Chairman of the Company) presiding. The Chairman, in the course of his remarks, said: In order to explain the change that has taken place I must remind you of the early days of the Company. The promoters secured, *inter alia,* the coalfield under the Hlobane Mountain, some 17 miles from Vryheid, the terminus of the South African Railway. In 1906 an Act of Parliament was passed under which the Company was allowed to build the necessary railway, and with this concession was coupled the liability to supply any quantity of coal to the railway administration for its own purposes at 5s. per ton. Subsequently another Act was passed limiting the quantity to 12,000 tons a month. It is this liability continuing up to 1931, which has proved in recent years the great stumbling block to the Company's success. Owing to the War and other causes, the cost of getting coal has risen to such an extent that the coal supplied to the Government involved a considerable loss to the Company. Then, again, other collieries in the district, using our railway, have been opened out, and these were placed under no obligation to supply coal at 5s. per ton. Hence it arose that we, the pioneers who had risked our money in opening up a new coalfield and in building the railway, were in a worse position than those who had followed our example and were using our railway. This was the position in the spring of 1919, when I approached Sir William Hoy, the General Manager of the South African Rail- Sir William Hoy, the general manager of the South African Railways. I pointed out that a revision of terms was a matter of common fairness, and also in the best interests of both the Government and the Company. Ultimately an agreement was entered into providing that the Railway Administration should buy the railway at cost, namely, £75,000, and that the Company should contract to supply over a period of three years 20,000 short tons per month of first-grade steam coal at 7s. per ton. This agreement was subject to confirmation by an Act of Parliament which has now been duly passed, but subject to a prolongation of the contract to supply coal to December 31, 1931, with an option to the Administration only to terminate the contract in 1926. A clause, however, was introduced providing that in the event of a rise or fall in the cost of wages and materials there shall be a corresponding rise or fall in the selling price per ton. The Company is now placed in a position when it can look forward with some confidence to reasonable prosperity. The profit for the year is £26,000, as compared with £13,800 last year.

The Chairman concluded by proposing the adoption of the report and accounts and the payment of a dividend of 5 per cent., which motion was adopted.

Witwatersrand Deep, Ltd.

(Incorporated in the Transvaal.)

TENDERS
FOR
MEALIES, MEALIE MEAL AND BEANS.

TENDERS are invited for the supply of the following, for periods of 6 or 12 months, at the Company's option:—

800 bags (per month) MEALIE MEAL, 1st grade, granulated.
100 bags (per month) BEST WHITE MEALIES.
80 bags (per month) BEANS.

All 10% (ten per cent.) more or less.

DELIVERIES to commence as to the WHITE MEALIES and BEANS, 1st November, 1920; MEALIE MEAL, 1st January, 1921.

The lowest or any tender not necessarily accepted.

SAMPLES must be submitted with each tender on or before the 25th September, 1920, closed and addressed:—

BUYING DEPARTMENT, Witwatersrand Deep, Ltd.,
c/o Messrs. L. Charlston Goch & Co.,
88-94 Exploration Buildings,
Johannesburg.

[illegible] LIST NOV 1 1930

TN
1
S13
v.29
pt.2

S.A. mining and engineering journal

~~Physical & Applied Sci Serials~~

Engineering

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

ENGIN STORAGE